US 20040229730A1

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(43) Pub. Date: Nov. 18, 2004

Ainsworth et al.

(54) SERVICE TRACKING AND ALERTING SYSTEM FOR FITNESS EQUIPMENT

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(21) Appl. No.: **10/765,704**

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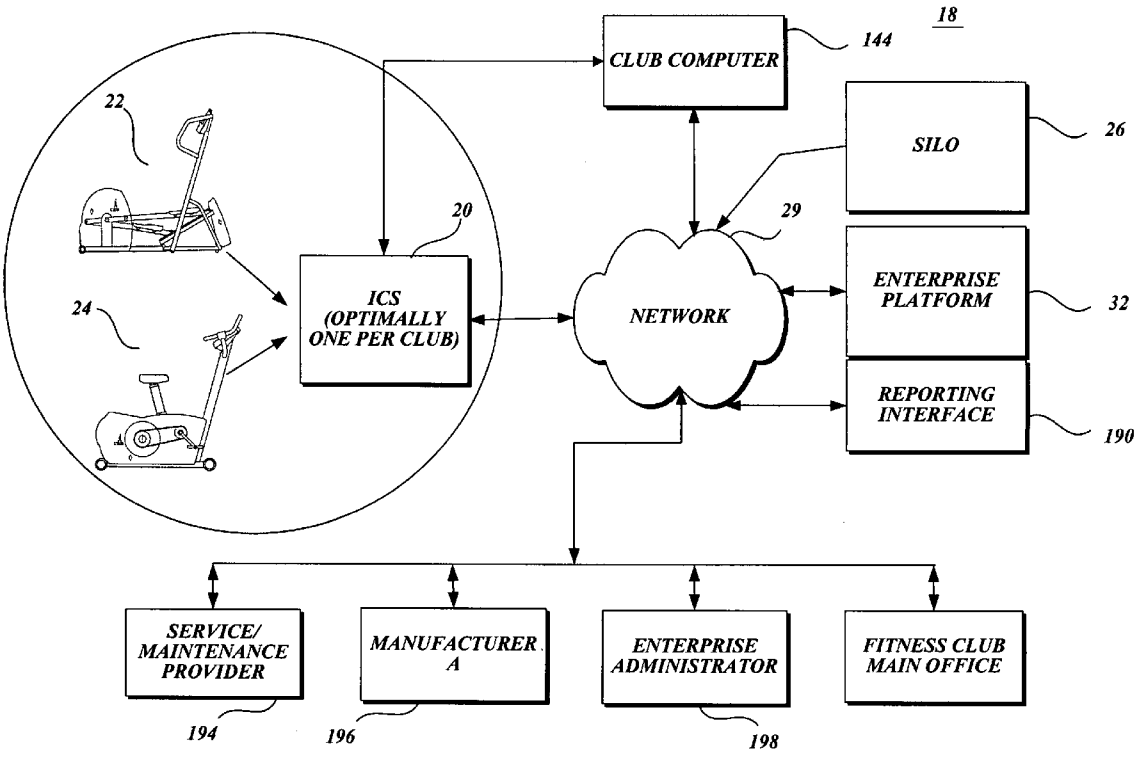
Publication Classification

(51) **Int. Cl.**[7] **A63B 71/00**; A63B 15/02

(52) **U.S. Cl.** **482/8**; 482/1

(57) **ABSTRACT**

A service tracking and alerting system for fitness equipment (**18**) includes one or more subsystems of multiple control servers (**20**) (ICS) to gather real time information from one or more fitness equipment units (**22, 24**) (FEU) via wireless connection and store such information in a temporary database (**25**). Multiple ICSs are linked to a remotely located accumulated data storage unit or silo (**26**) having a permanent storage database (**27**). One or more silos (**26**) and their corresponding ICSs are controlled, accessed, and interrogated through an enterprise level platform (**32**). Service alert messages may be generated and sent to one or more recipients if an FEU experiences a significant service event. Also, a reporting interface (**190**) allows users to access, enter, update and/or alter, service usage, warranty, and other information from the data storage units (**26**) and ICSs (**20**).



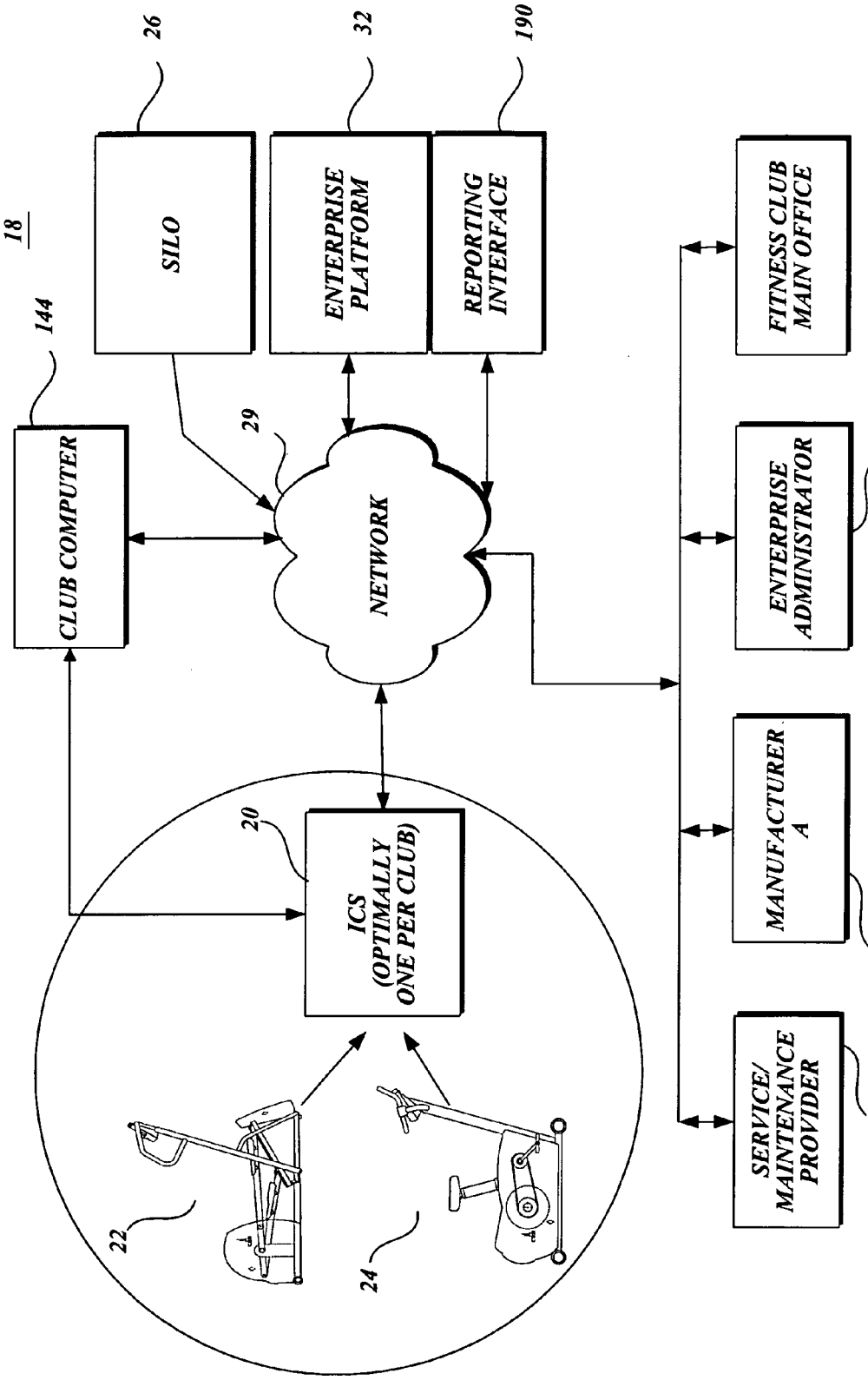

18
144
CLUB COMPUTER
26
SILO
32
ENTERPRISE PLATFORM
190
REPORTING INTERFACE
29
NETWORK
20
ICS (OPTIMALLY ONE PER CLUB)
22
24
FITNESS CLUB MAIN OFFICE
ENTERPRISE ADMINISTRATOR
198
MANUFACTURER A
196
SERVICE/ MAINTENANCE PROVIDER
194

Fig.1.

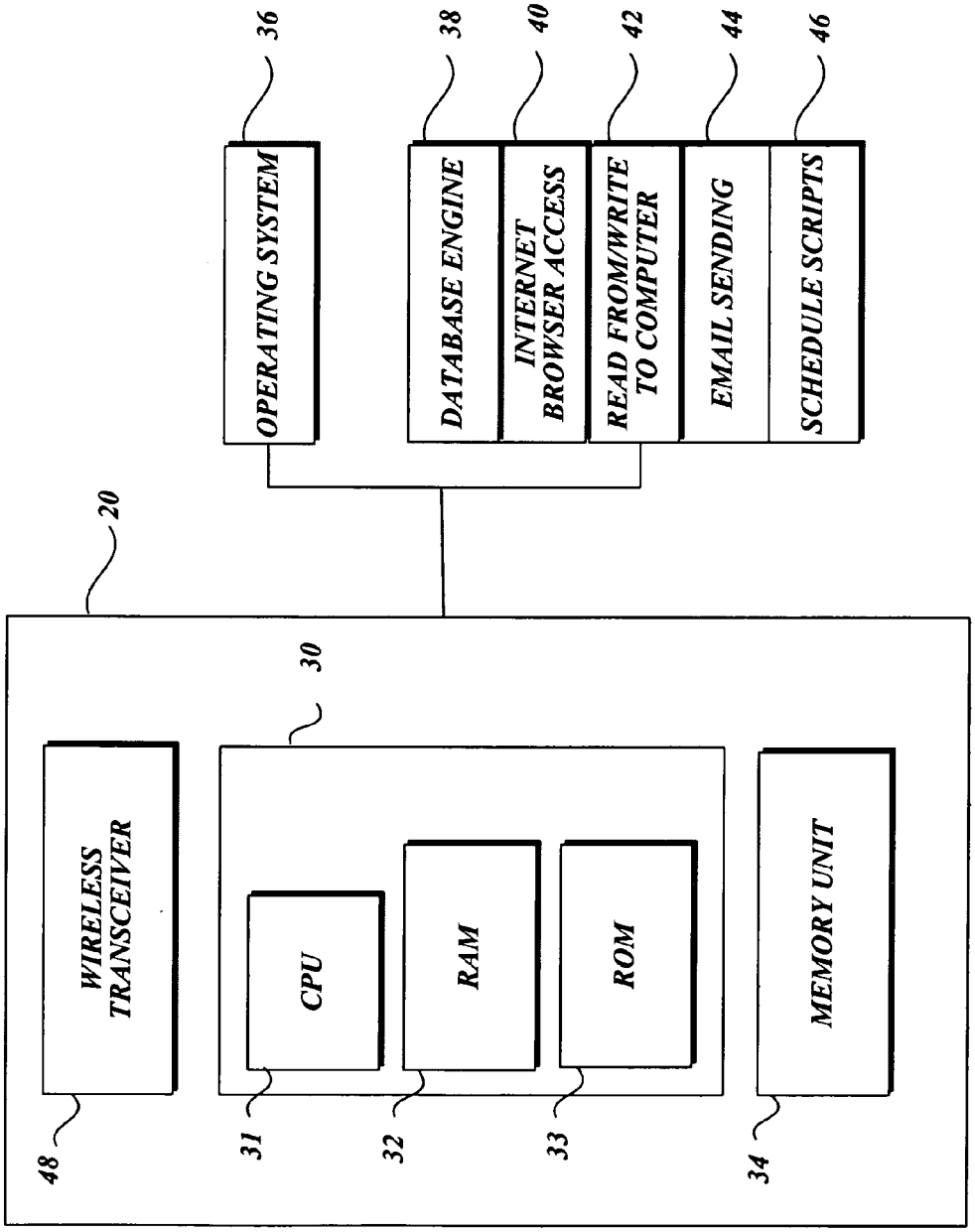

20
WIRELESS TRANSCEIVER
48
30
CPU
31
RAM
32
ROM
33
MEMORY UNIT
34
OPERATING SYSTEM
36
DATABASE ENGINE
38
INTERNET BROWSER ACCESS
40
READ FROM/WRITE TO COMPUTER
42
EMAIL SENDING
44
SCHEDULE SCRIPTS
46

Fig.2.

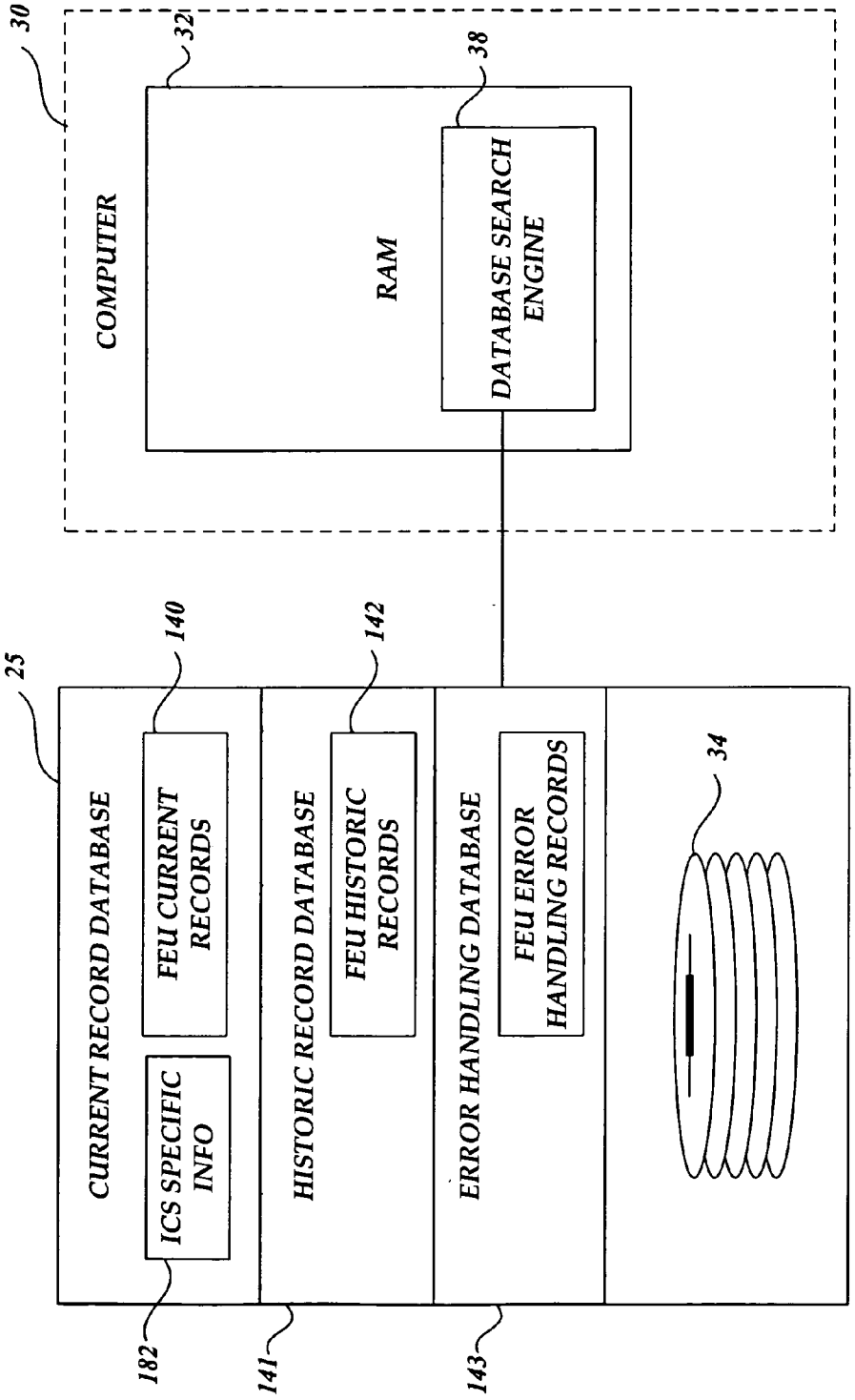

30
COMPUTER
32
RAM
38
DATABASE SEARCH ENGINE
25
CURRENT RECORD DATABASE
140
FEU CURRENT RECORDS
ICS SPECIFIC INFO
182
HISTORIC RECORD DATABASE
142
FEU HISTORIC RECORDS
141
ERROR HANDLING DATABASE
FEU ERROR HANDLING RECORDS
143
34

Fig.3.

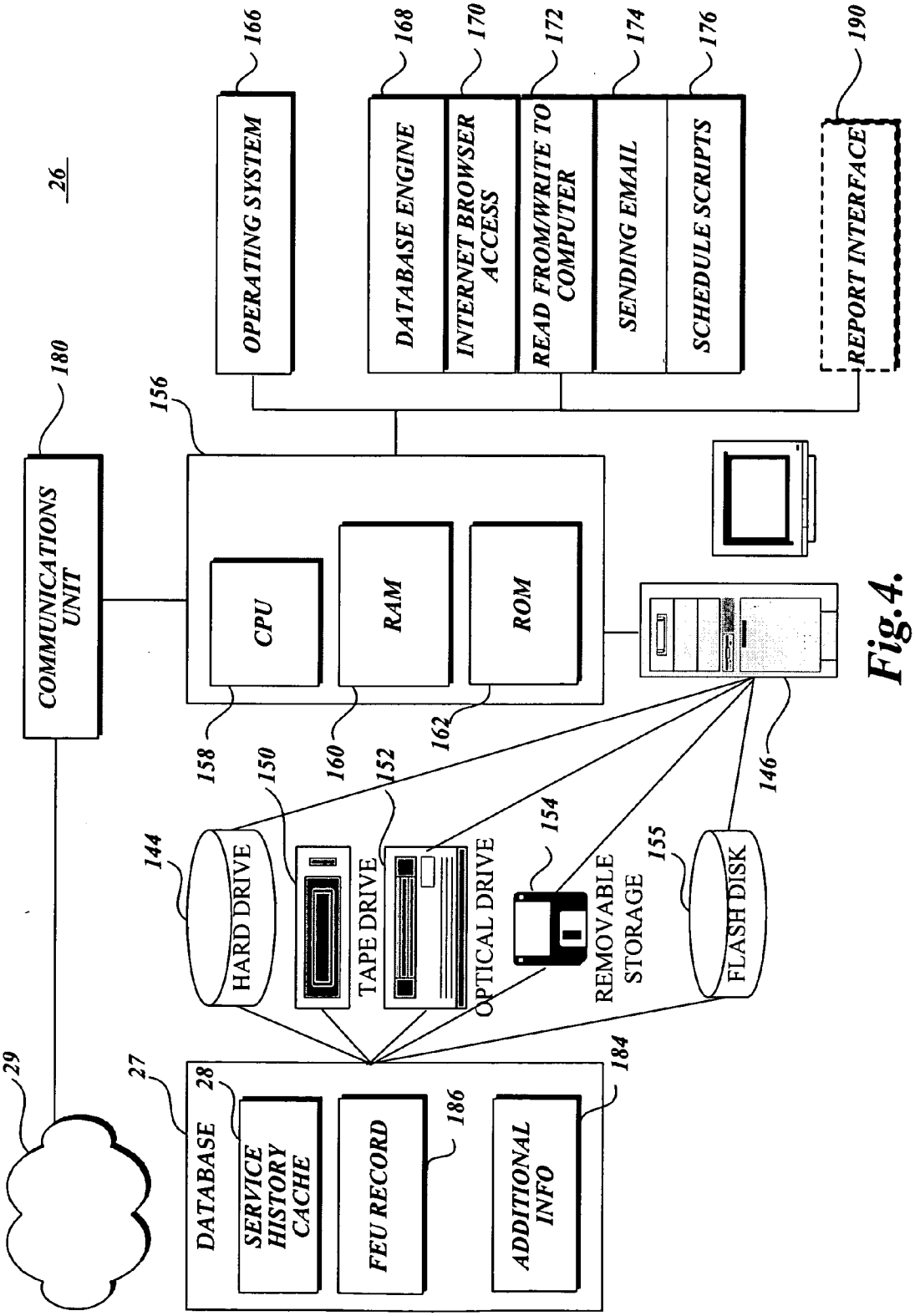

26
COMMUNICATIONS UNIT
180
156
OPERATING SYSTEM
166
DATABASE ENGINE
168
INTERNET BROWSER ACCESS
170
READ FROM/WRITE TO COMPUTER
172
SENDING EMAIL
174
SCHEDULE SCRIPTS
176
REPORT INTERFACE
190
CPU
RAM
ROM
158
160
162
146
144
HARD DRIVE
150
TAPE DRIVE
152
OPTICAL DRIVE
154
REMOVABLE STORAGE
155
FLASH DISK
29
27
DATABASE
28
SERVICE HISTORY CACHE
FEU RECORD
186
ADDITIONAL INFO
184

Fig. 4.

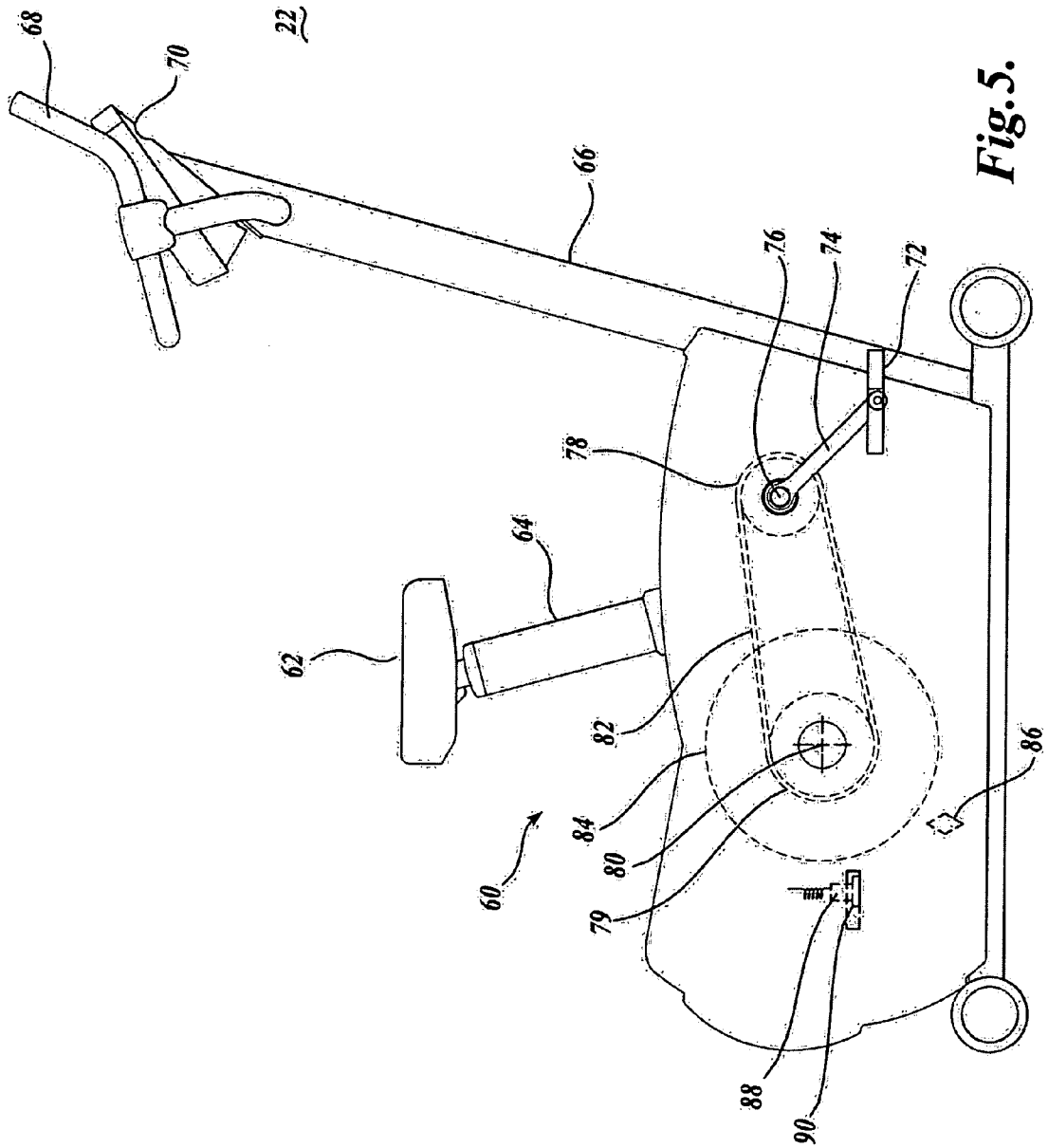


Fig.5.

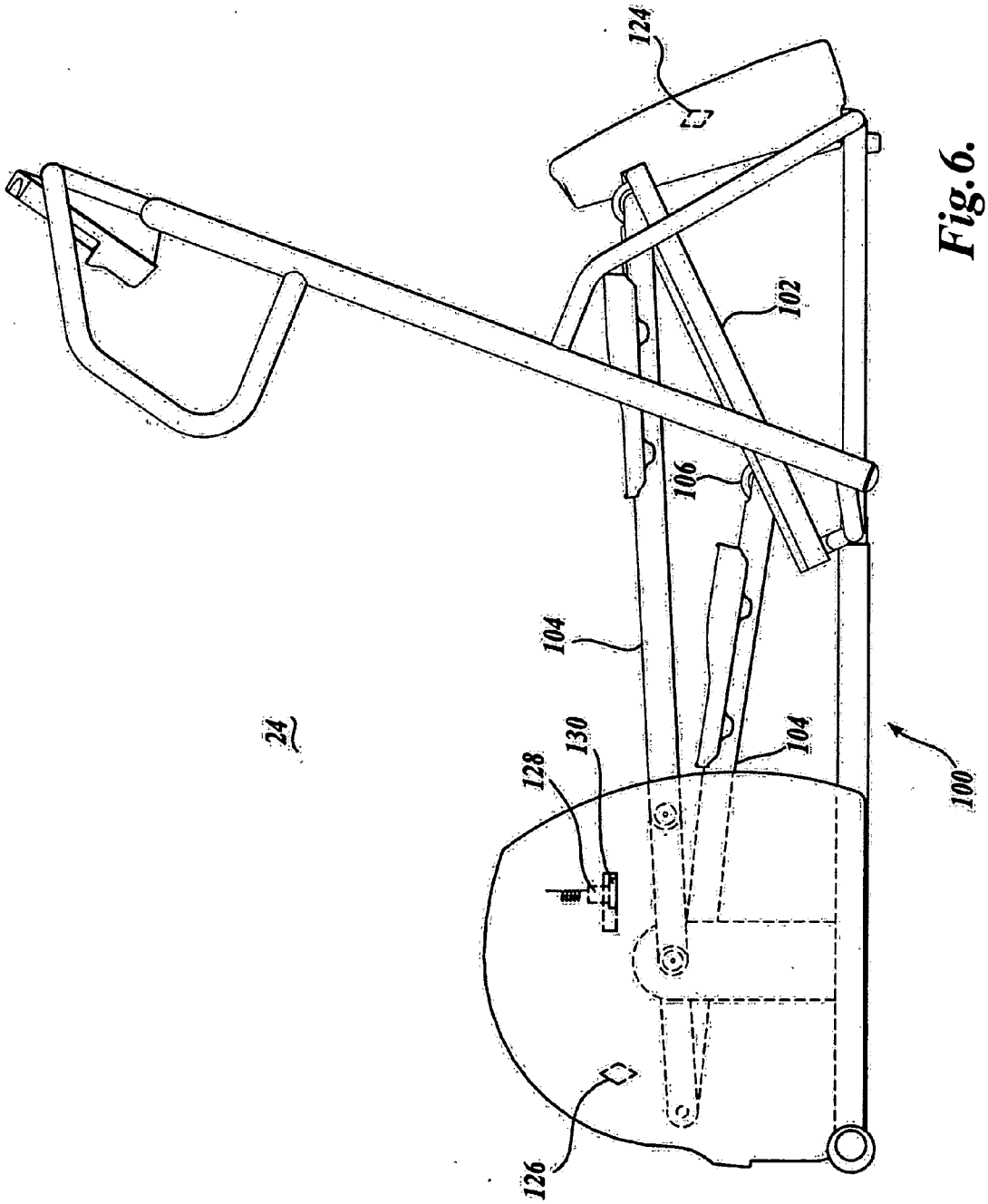


Fig.6.

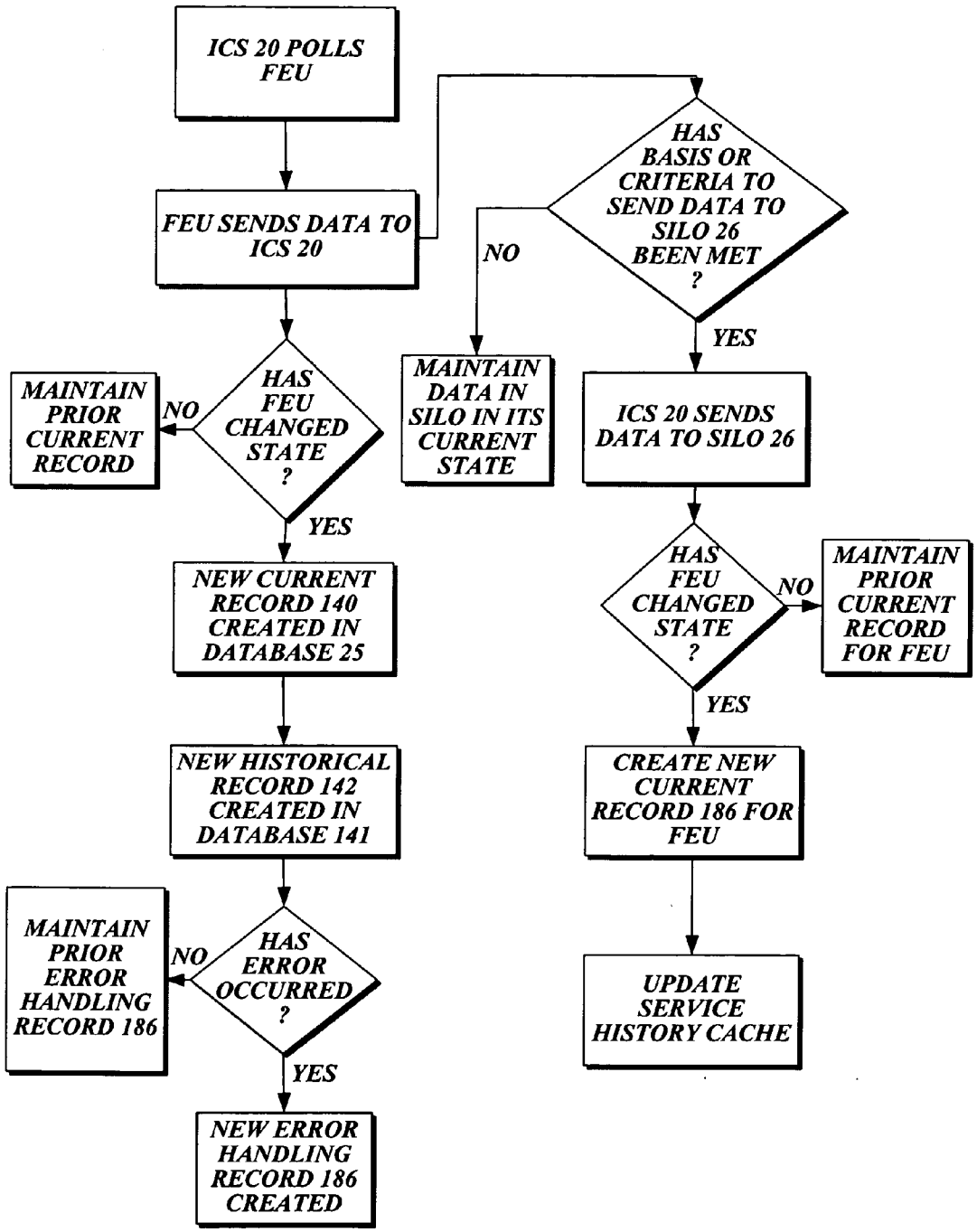

ICS 20 POLLS FEU
FEU SENDS DATA TO ICS 20
HAS FEU CHANGED STATE ?
NO
MAINTAIN PRIOR CURRENT RECORD
YES
NEW CURRENT RECORD 140 CREATED IN DATABASE 25
NEW HISTORICAL RECORD 142 CREATED IN DATABASE 141
HAS ERROR OCCURRED ?
NO
MAINTAIN PRIOR ERROR HANDLING RECORD 186
YES
NEW ERROR HANDLING RECORD 186 CREATED
HAS BASIS OR CRITERIA TO SEND DATA TO SILO 26 BEEN MET ?
NO
MAINTAIN DATA IN SILO IN ITS CURRENT STATE
YES
ICS 20 SENDS DATA TO SILO 26
HAS FEU CHANGED STATE ?
NO
MAINTAIN PRIOR CURRENT RECORD FOR FEU
YES
CREATE NEW CURRENT RECORD 186 FOR FEU
UPDATE SERVICE HISTORY CACHE

Fig. 7.

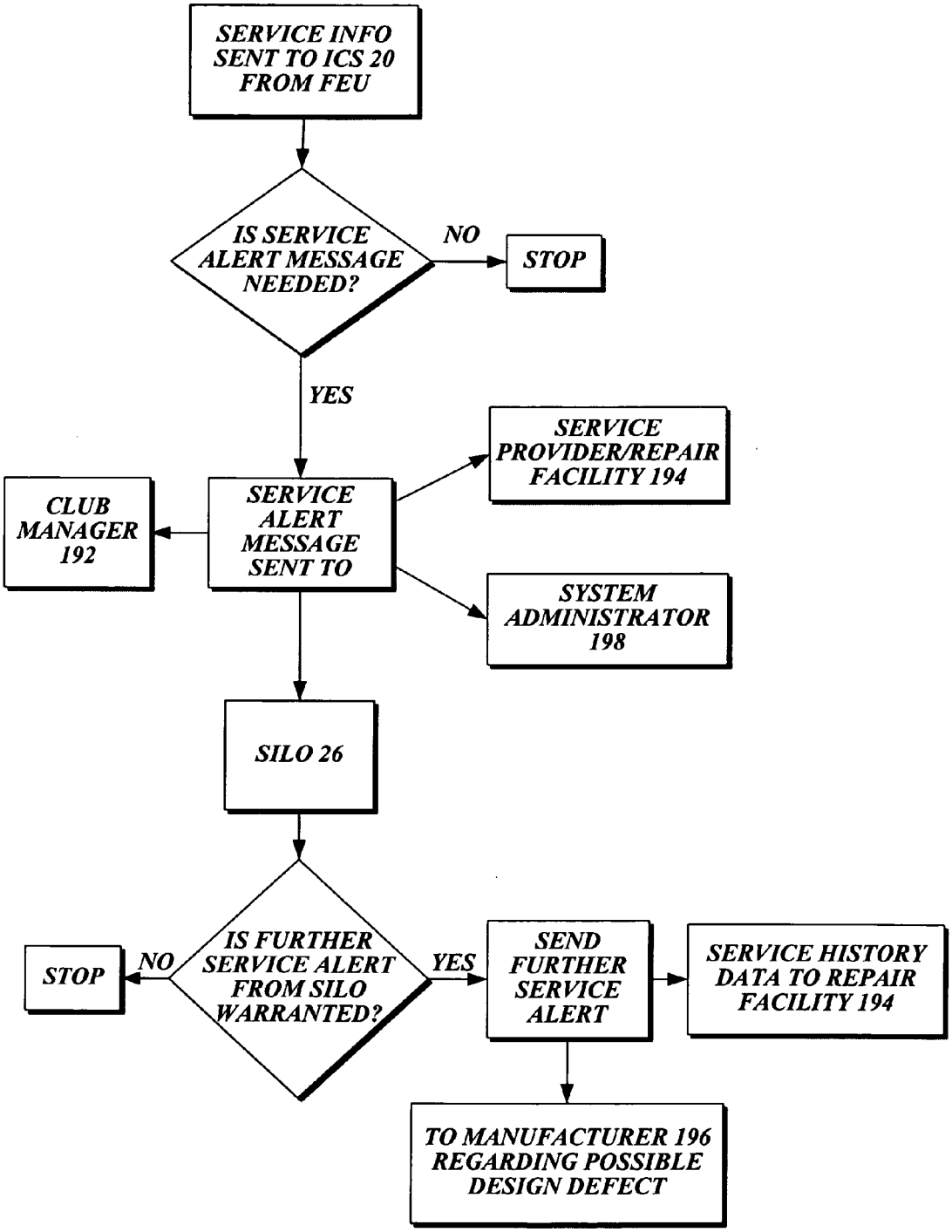

SERVICE INFO SENT TO ICS 20 FROM FEU
IS SERVICE ALERT MESSAGE NEEDED?
NO
STOP
YES
SERVICE PROVIDER/REPAIR FACILITY 194
CLUB MANAGER 192
SERVICE ALERT MESSAGE SENT TO
SYSTEM ADMINISTRATOR 198
SILO 26
STOP
NO
IS FURTHER SERVICE ALERT FROM SILO WARRANTED?
YES
SEND FURTHER SERVICE ALERT
SERVICE HISTORY DATA TO REPAIR FACILITY 194
TO MANUFACTURER 196 REGARDING POSSIBLE DESIGN DEFECT

Fig.8.

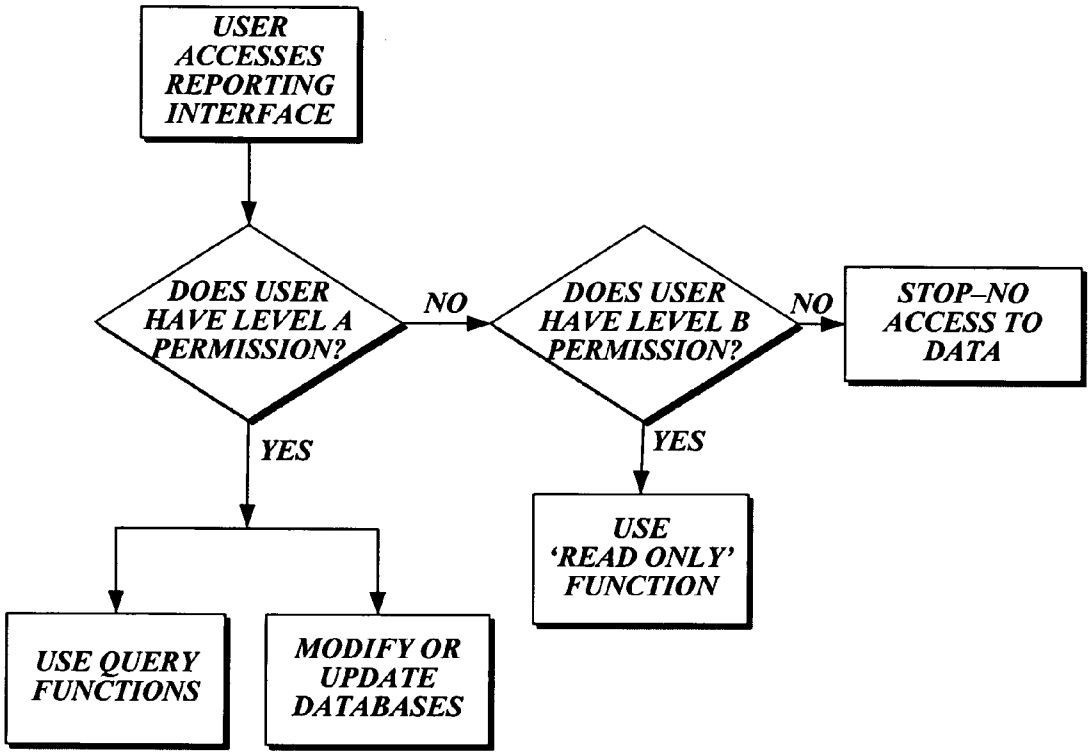

USER ACCESSES REPORTING INTERFACE
DOES USER HAVE LEVEL A PERMISSION?
NO
DOES USER HAVE LEVEL B PERMISSION?
NO
STOP–NO ACCESS TO DATA
YES
YES
USE 'READ ONLY' FUNCTION
USE QUERY FUNCTIONS
MODIFY OR UPDATE DATABASES

Fig.8A.

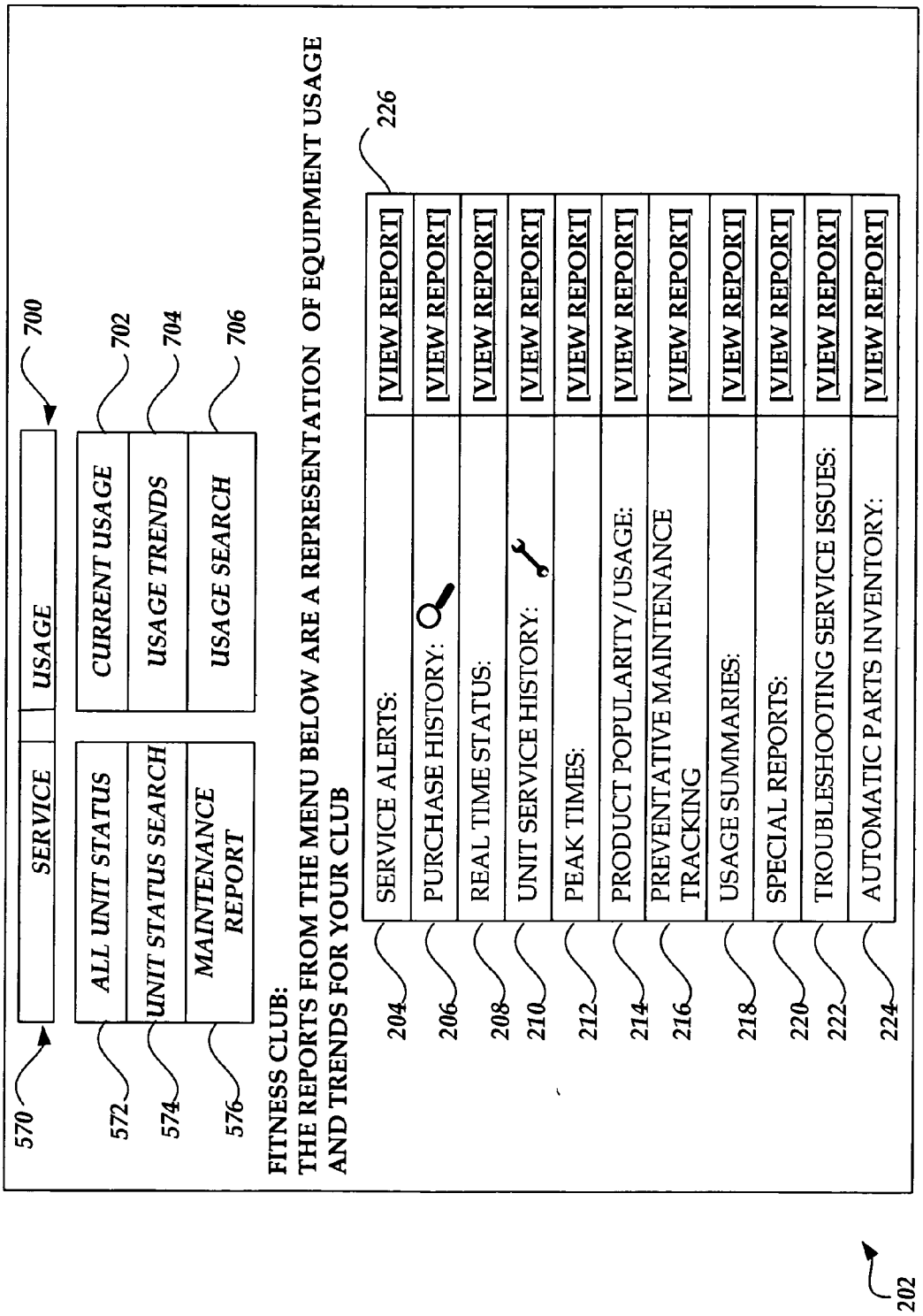

570
SERVICE
USAGE
700
572
ALL UNIT STATUS
574
UNIT STATUS SEARCH
576
MAINTENANCE REPORT
702
CURRENT USAGE
704
USAGE TRENDS
706
USAGE SEARCH
FITNESS CLUB:
THE REPORTS FROM THE MENU BELOW ARE A REPRESENTATION OF EQUIPMENT USAGE AND TRENDS FOR YOUR CLUB
226
204 SERVICE ALERTS: [VIEW REPORT]
206 PURCHASE HISTORY: [VIEW REPORT]
208 REAL TIME STATUS: [VIEW REPORT]
210 UNIT SERVICE HISTORY: [VIEW REPORT]
212 PEAK TIMES: [VIEW REPORT]
214 PRODUCT POPULARITY/USAGE: [VIEW REPORT]
216 PREVENTATIVE MAINTENANCE TRACKING [VIEW REPORT]
218 USAGE SUMMARIES: [VIEW REPORT]
220 SPECIAL REPORTS: [VIEW REPORT]
222 TROUBLESHOOTING SERVICE ISSUES: [VIEW REPORT]
224 AUTOMATIC PARTS INVENTORY: [VIEW REPORT]
202

Fig. 9.

230

FROM: CLUB X-301 232

TO: SERVICE@CLUBX.COM

CC: SERVICE@BRANDX.COM; MANAGER301@CLUBX.COM; SERVICETRACKER.COM 196 192 198

RECEIVED:12/12/03 13:01:42

SUBJECT: SERVICE ISSUE AT CLUB X-301

ATTENTION SERVICETRACKER™ SERVICE ISSUE RECIPIENT. THE FOLLOWING ERROR MESSAGE WAS GENERATED TODAY:

LOCATION	ERROR DATE	ERROR TIME	MODEL	SERIAL#	ERROR CODE	ERROR DESCRIPTION
CLUB X-301	12/12/2002	13:00:11	BRANDX	XXX0001	42	LIFT NOT OPERATING

TO GO TO SERVICETRACKER FOR THE SERVICE HISTORY, PREVENTATIVE MAINTENANCE RECORD OR OTHER INFORMATION, PLEASE **CLICK HERE**, OR COPY THE FOLLOWING ADDRESS TO YOUR BROWSER: HTTP://SERVICETRACKER.COM/CLUBX-301

YOU WILL NEED YOUR SIGN IN AND PASSWORD TO ACCESS SERVICETRACKER™

THANK YOU.

SERVICETRACKER

234 236 238 239 229

Fig.10.

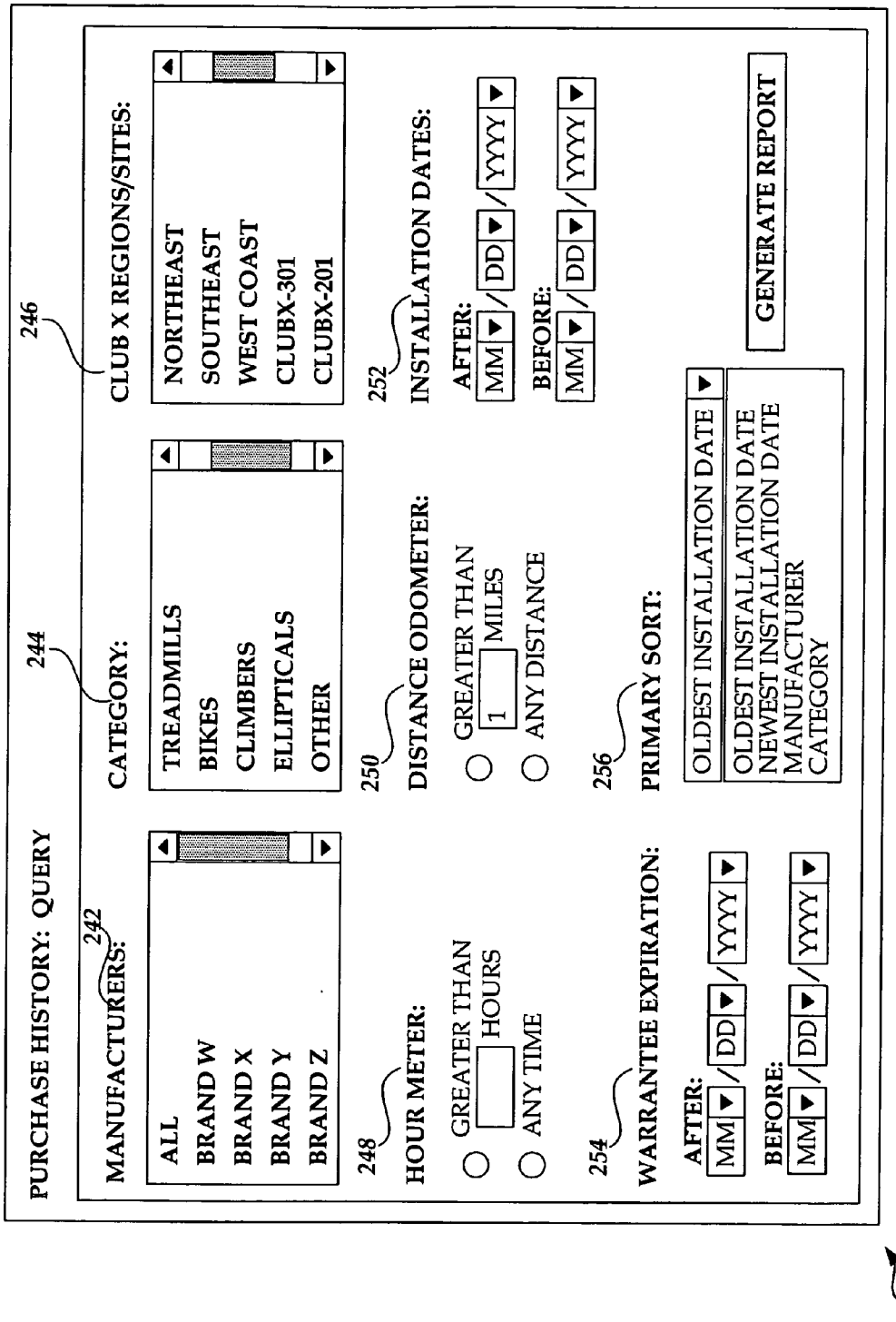

PURCHASE HISTORY: QUERY
244
246
MANUFACTURERS:
242
ALL
BRAND W
BRAND X
BRAND Y
BRAND Z
CATEGORY:
TREADMILLS
BIKES
CLIMBERS
ELLIPTICALS
OTHER
CLUB X REGIONS/SITES:
NORTHEAST
SOUTHEAST
WEST COAST
CLUBX-301
CLUBX-201
248
HOUR METER:
GREATER THAN
HOURS
ANY TIME
250
DISTANCE ODOMETER:
GREATER THAN
1
MILES
ANY DISTANCE
252
INSTALLATION DATES:
AFTER:
MM
DD
YYYY
BEFORE:
MM
DD
YYYY
254
WARRANTEE EXPIRATION:
AFTER:
MM
DD
YYYY
BEFORE:
MM
DD
YYYY
256
PRIMARY SORT:
OLDEST INSTALLATION DATE
OLDEST INSTALLATION DATE
NEWEST INSTALLATION DATE
MANUFACTURER
CATEGORY
GENERATE REPORT
240

Fig.11.

PURCHASE HISTORY: RESULTS

276		260 INSTALL DATE	262 WARRANTY EXP. DATE	264 MFR.	266 MODEL/ TYPE	268 SITE/ LOCATION	270 HOUR ODOMETER	272 DISTANCE ODOMETER	274 VIEW SERVICE REPORT
	1	08/01/1997	08/01/2000	Y	1500HR	CLUB X - 301	22,440	89,608	
	2	08/01/1997	08/01/2000	Y	1100	CLUB X - 200	17,890	71,561	
	3	08/02/1997	08/02/2000	Y	1500HR	CLUB X - 301	22,471	89,884	
	4	10/07/1998	10/07/2001	W	164I	CLUB X - 301	6,020	24,084	
	5	10/10/1997	10/10/2000	W	164I	CLUB X - 301	21,078	84,312	
	6	10/10/1997	10/10/2000	W	164I	CLUB X - 302	19,008	96,032	
	7	10/10/1997	10/01/2000	W	164I	CLUB X - 017	10,972	43,888	
	8	12/01/1998	12/01/2001	W	156	CLUB X - 086	5,002	20,008	
	9	12/01/1998	12/01/2001	W	156	CLUB X - 086	17,520	68,080	

258

Fig. 12.

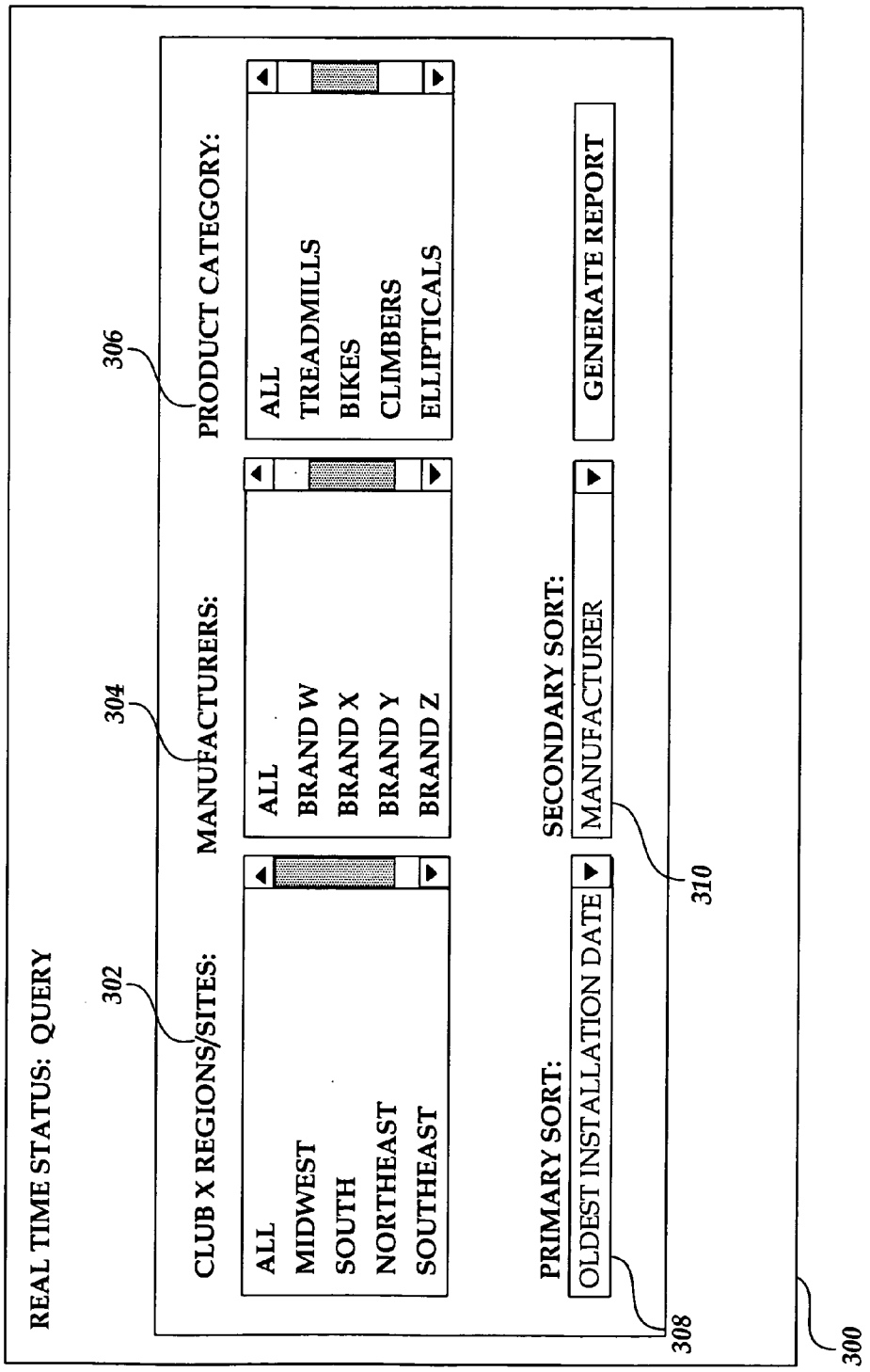

REAL TIME STATUS: QUERY
CLUB X REGIONS/SITES:
ALL
MIDWEST
SOUTH
NORTHEAST
SOUTHEAST
MANUFACTURERS:
ALL
BRAND W
BRAND X
BRAND Y
BRAND Z
PRODUCT CATEGORY:
ALL
TREADMILLS
BIKES
CLIMBERS
ELLIPTICALS
PRIMARY SORT:
OLDEST INSTALLATION DATE
SECONDARY SORT:
MANUFACTURER
GENERATE REPORT
302
304
306
308
310
300

Fig.13.

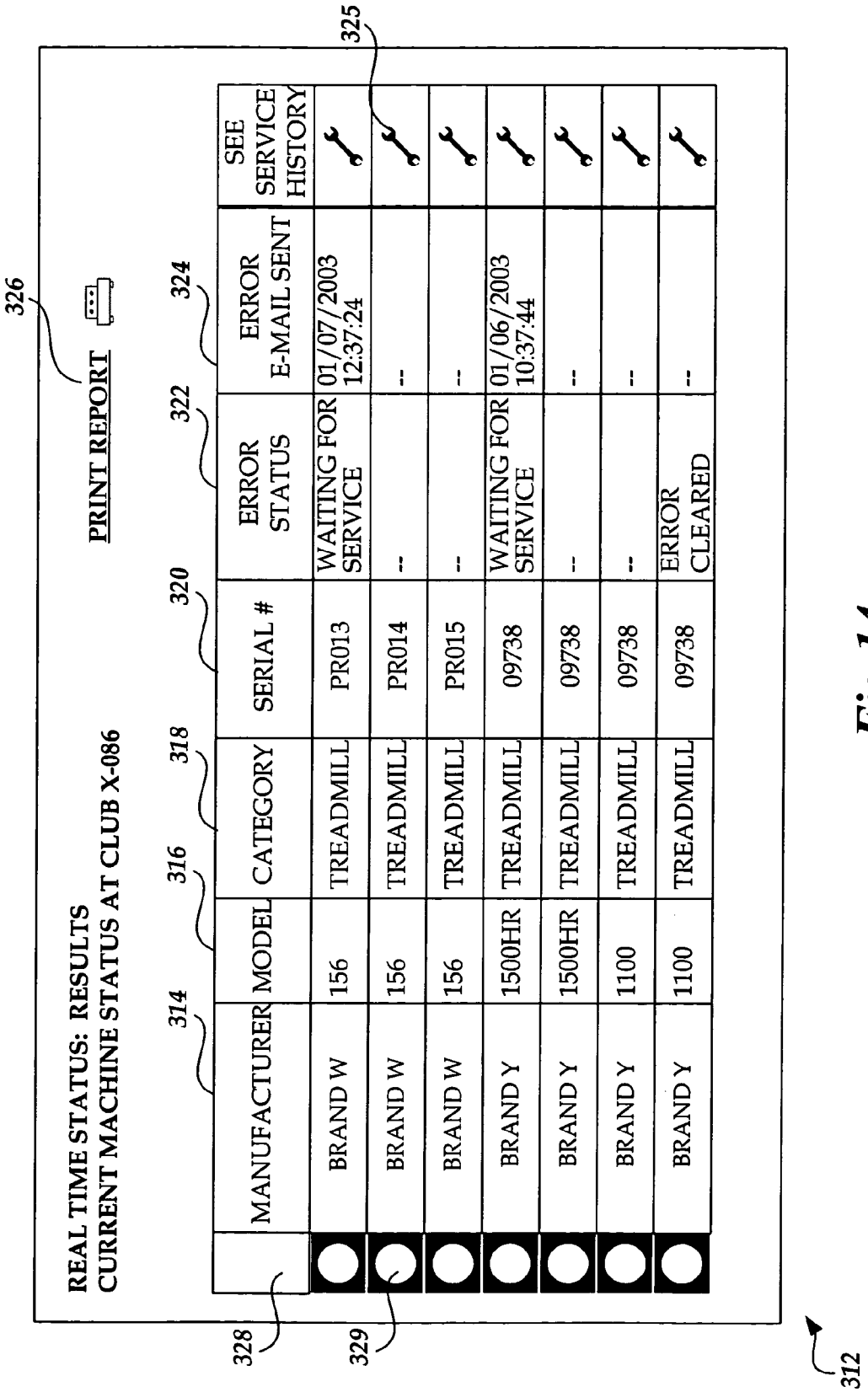

REAL TIME STATUS: RESULTS
CURRENT MACHINE STATUS AT CLUB X-086
PRINT REPORT
326
314
316
318
320
322
324
325
328
329
312
MANUFACTURER
MODEL
CATEGORY
SERIAL #
ERROR STATUS
ERROR E-MAIL SENT
SEE SERVICE HISTORY
BRAND W 156 TREADMILL PR013 WAITING FOR SERVICE 01/07/2003 12:37:24
BRAND W 156 TREADMILL PR014 -- --
BRAND W 156 TREADMILL PR015 -- --
BRAND Y 1500HR TREADMILL 09738 WAITING FOR SERVICE 01/06/2003 10:37:44
BRAND Y 1500HR TREADMILL 09738 -- --
BRAND Y 1100 TREADMILL 09738 -- --
BRAND Y 1100 TREADMILL 09738 ERROR CLEARED --

Fig.14.

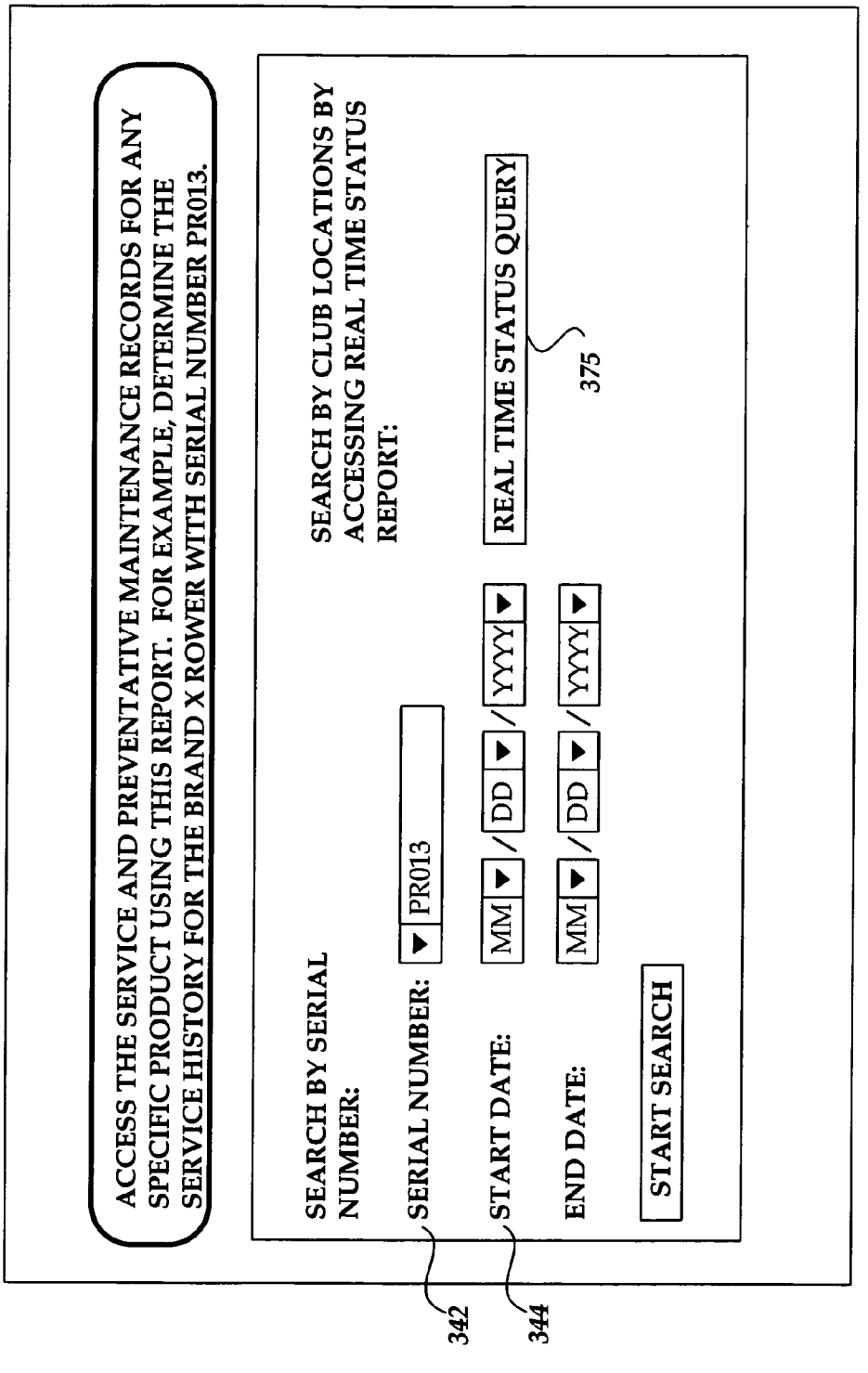

ACCESS THE SERVICE AND PREVENTATIVE MAINTENANCE RECORDS FOR ANY SPECIFIC PRODUCT USING THIS REPORT. FOR EXAMPLE, DETERMINE THE SERVICE HISTORY FOR THE BRAND X ROWER WITH SERIAL NUMBER PR013.
SEARCH BY SERIAL NUMBER:
SEARCH BY CLUB LOCATIONS BY ACCESSING REAL TIME STATUS REPORT:
SERIAL NUMBER:
PR013
REAL TIME STATUS QUERY
375
START DATE:
MM
DD
YYYY
END DATE:
MM
DD
YYYY
START SEARCH
342
344
340

Fig. 15.

UNIT SERVICE HISTORY

LOCATION: [SELECTED LOCATION] (380)
DATE RANGE: [SELECTED TIME SPAN] (381)

MANUFACTURER SERIAL NO.: [TEXT] (382)
UNIT IDENTIFIER: [TEXT] (383)

TOTAL HOURS: _____ (385)
TOTAL ODOMETER: _____ (386)

	TOTAL HOURS DOWN-TIME (348)	MANU-FAC-TURER (381)	PRODUCT CATEGORY (350)	MODEL TYPE (352)	SERIAL # (258)	UNIT I.D. NO. (254)	INSTAL-LATION DATE (383)	LOCATION (256)	OWNER I.D. NO. (357)	SERVICER NAME (378)	SERVICER ACCT. # (359)
●	6	BRAND W	TREADMILL	954	PU074	____	12/13/02	CLUB X-301	71102	BILLY BOB	231423423

WARRANTY EXPIRATION DATE	FRAME (390)	DISPLAY (391)	PARTS (387)	LABOR (388)	MOTOR (392)	MOTOR FAN (393)
	12/13/02	12/13/02	12/13/02	12/13/02	12/13/02	12/13/02

VIEW/ADD SERVICE RECORD NOTES (376)

DATE (360)	TIME (362)	ERROR CODE (364)	PM RECOMM. (366)	ERROR DESCRIPTION (368)	HOUR METER (370)	ODO-METER (372)	ALERT SET (374)	PM STATUS (375)	ACKNOWL	ACKNOW-LEDGED BY: (377)
7/13/03	20:00	XX		SERVICE ISSUE DESCRIPTION	2222:23	8800	NO	--	7/13/03 10:00	BUCK JONES
5/1/03	08:00	XX	CS	SERVICE ISSUE DESCRIPTION	900:00	3500	--	COM-PLETE	5/1/03 06:00	BUCK JONES
12/13/02	16:00		--	INSITE INSTALLATION	289:23	1152	YES	--		
6/1/02	12:00		CS	FEU INSTALLATION	00:00	0	--	POST-PONED		

PM RECOMMENDATION KEY: FD - FLIP DECK; RW = REFILL WAX; CS = CLEAN SURFACES; V = VACUUM; WD = WAX DECK. (378)

346

Fig.16.

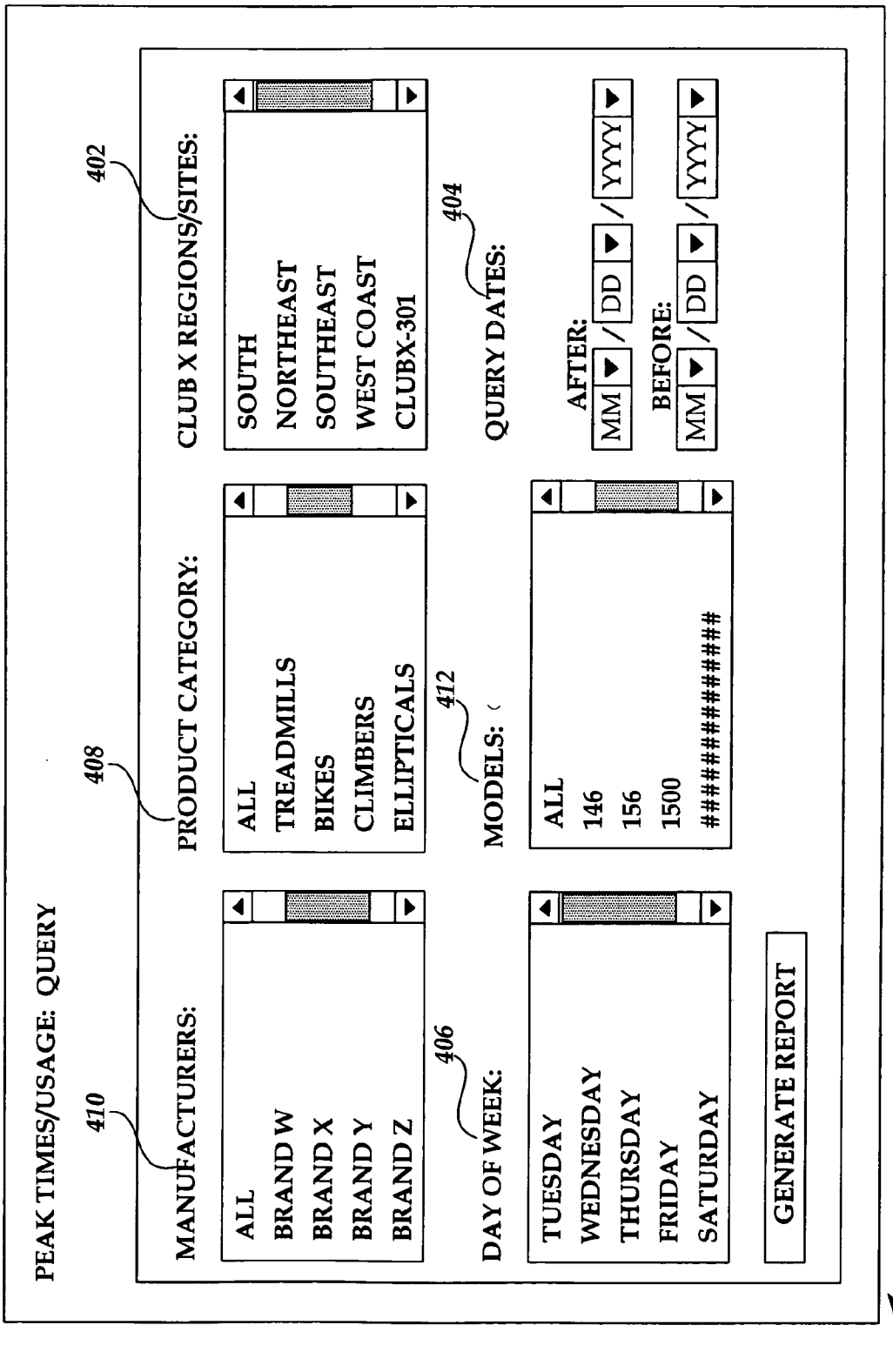

PEAK TIMES/USAGE: QUERY
400
402
CLUB X REGIONS/SITES:
SOUTH
NORTHEAST
SOUTHEAST
WEST COAST
CLUBX-301
404
QUERY DATES:
AFTER:
MM
DD
YYYY
BEFORE:
MM
DD
YYYY
408
PRODUCT CATEGORY:
ALL
TREADMILLS
BIKES
CLIMBERS
ELLIPTICALS
412
MODELS:
ALL
146
156
1500
##########
410
MANUFACTURERS:
ALL
BRAND W
BRAND X
BRAND Y
BRAND Z
406
DAY OF WEEK:
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
GENERATE REPORT

Fig.17.

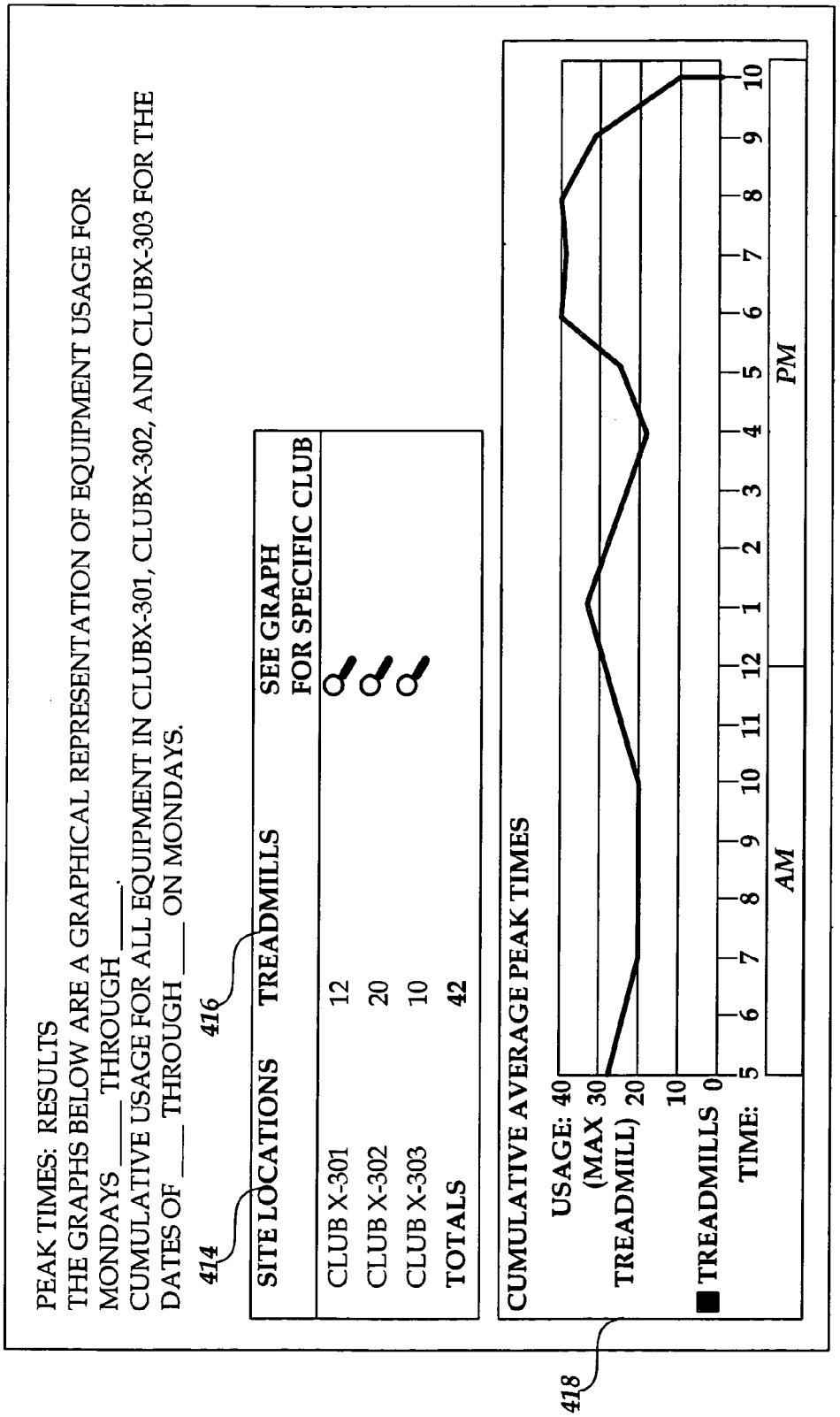

PEAK TIMES: RESULTS
THE GRAPHS BELOW ARE A GRAPHICAL REPRESENTATION OF EQUIPMENT USAGE FOR MONDAYS _____ THROUGH _____.
CUMULATIVE USAGE FOR ALL EQUIPMENT IN CLUBX-301, CLUBX-302, AND CLUBX-303 FOR THE DATES OF ____ THROUGH ____ ON MONDAYS.
414
416
SITE LOCATIONS
TREADMILLS
SEE GRAPH FOR SPECIFIC CLUB
CLUB X-301 12
CLUB X-302 20
CLUB X-303 10
TOTALS 42
CUMULATIVE AVERAGE PEAK TIMES
USAGE: (MAX TREADMILL)
40
30
20
10
0
TREADMILLS
TIME:
5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10
AM
PM
418

Fig. 18.

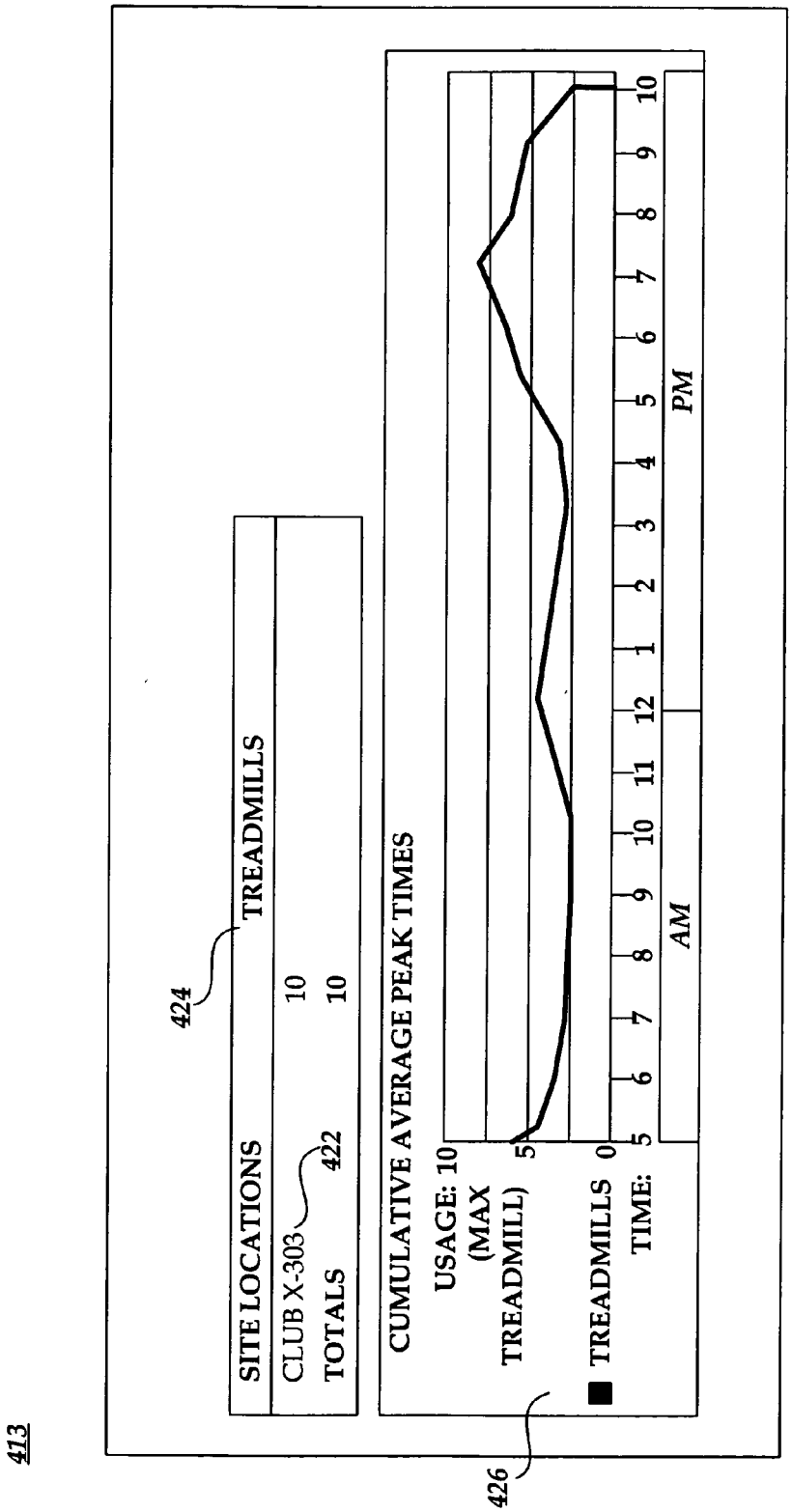

413
424
SITE LOCATIONS
TREADMILLS
CLUB X-303
10
TOTALS
10
422
CUMULATIVE AVERAGE PEAK TIMES
USAGE: 10
(MAX
TREADMILL)
5
0
TREADMILLS
TIME:
5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10
AM
PM
426

Fig.19.

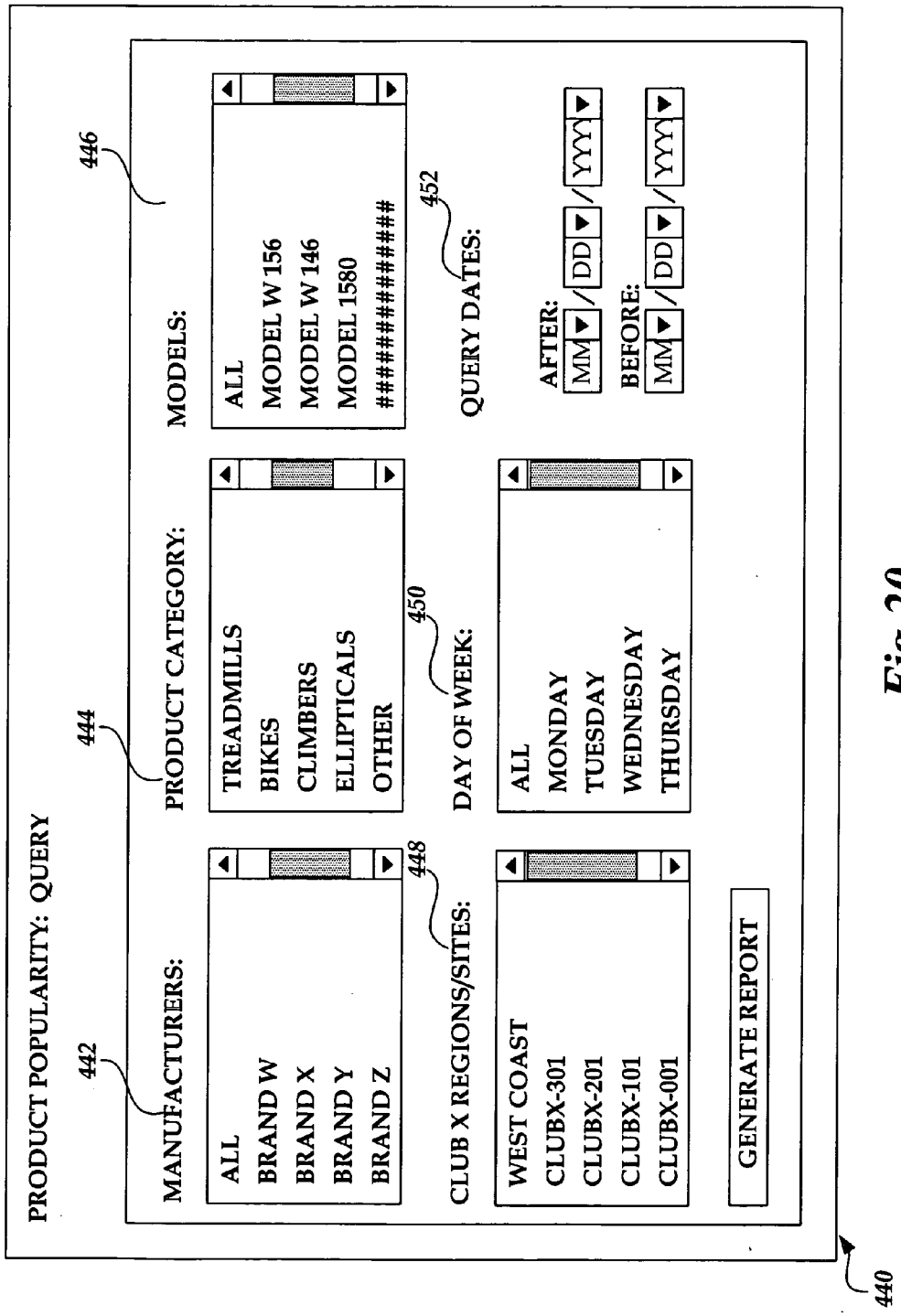

PRODUCT POPULARITY: QUERY
440
442
MANUFACTURERS:
ALL
BRAND W
BRAND X
BRAND Y
BRAND Z
444
PRODUCT CATEGORY:
TREADMILLS
BIKES
CLIMBERS
ELLIPTICALS
OTHER
446
MODELS:
ALL
MODEL W 156
MODEL W 146
MODEL 1580
##########
448
CLUB X REGIONS/SITES:
WEST COAST
CLUBX-301
CLUBX-201
CLUBX-101
CLUBX-001
450
DAY OF WEEK:
ALL
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
452
QUERY DATES:
AFTER:
MM
DD
YYY
BEFORE:
MM
DD
YYY
GENERATE REPORT

Fig.20.

PRODUCT POPULARITY: RESULTS

THE RESULTS BELOW SHOW THE AVERAGE HOURS OF USAGE/MACHINE/DAY BY MODEL TYPE FOR THE TIME PERIOD BETWEEN _____ THROUGH _____.

468 AVERAGE HRS. USAGE/ MACHINE/DAY	10 HRS/ DAY	9.2 HRS/ DAY	8.0 HRS/ DAY	7.3 HRS/ DAY	3.2 HRS/ DAY
456 MANUFACTURER	BRAND W	BRAND W	BRAND Y	BRAND X	BRAND Y
458 MODEL TYPE	156 TREAD.	146 ELLIP.	1500HR ELLIP.	ELITE TREAD.	1100
460 TOTAL PRODUCTS IN GROUP	5	2	4	3	2
462 TOTAL HOURS OF USAGE	420 HRS	129 HRS	224 HRS	204 HRS	45 HRS
464 TOTAL AVAILABLE HOURS	672 HRS	224 HRS	448 HRS	448 HRS	224 HRS
466 USAGE / AVAILABLE HOURS	62.5%	57.6%	50.0%	45.6%	21.8%

454 THE RESULTS BELOW SHOW THE MILES ACCRUED FOR THE TREADMILLS AT CLUBX-203 FROM ___ TO ___.

TREADMILL USAGE (484)							
472 MANUFACTURER	W	W	W	Y	Y	W	W
474 MODEL TYPE	156	156	156	ELITE	ELITE	156	156
476 ODOMETER HOURS	4778	4778	4778	3892	3892	4778	4778
478 DISTANCE ODOMETER	18,864 MILES	18,864 MILES	18,864 MILES	15,672 MILES	15,672 MILES	18,864 MILES	18,864 MILES
480 MANUFACTURER SERIAL #	31P0057	31P0054	31P0056	31P0062	31P0063	31P0061	1P0064
482 UNIT I.D. NO.	EO1x7	EO1x4	EO1x3	EO1x23	EO1x9	EO1x15	EO1x25

470

Fig.21.

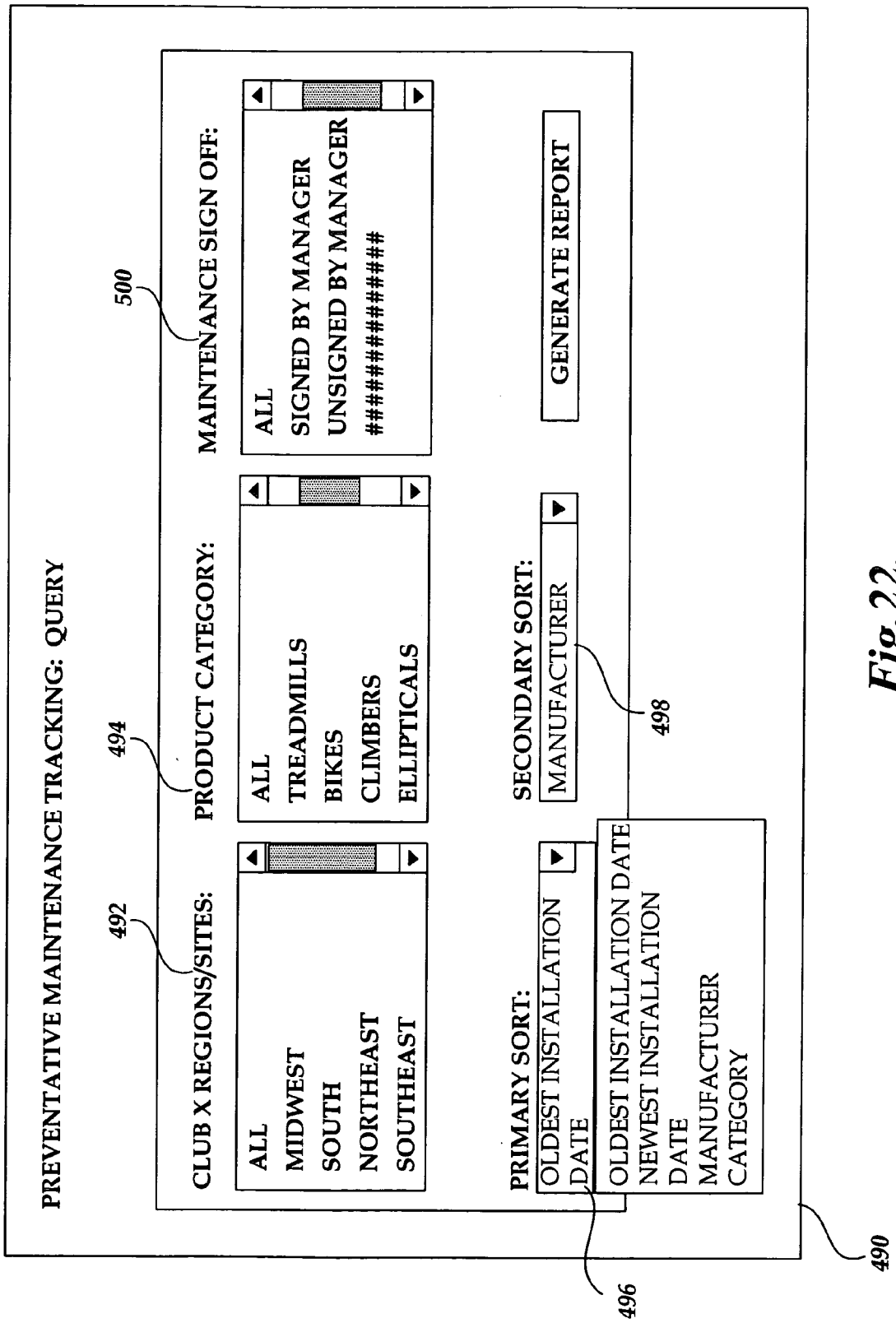

PREVENTATIVE MAINTENANCE TRACKING: QUERY
CLUB X REGIONS/SITES:
ALL
MIDWEST
SOUTH
NORTHEAST
SOUTHEAST
PRODUCT CATEGORY:
ALL
TREADMILLS
BIKES
CLIMBERS
ELLIPTICALS
MAINTENANCE SIGN OFF:
ALL
SIGNED BY MANAGER
UNSIGNED BY MANAGER
##########
PRIMARY SORT:
OLDEST INSTALLATION DATE
OLDEST INSTALLATION DATE
NEWEST INSTALLATION DATE
MANUFACTURER
CATEGORY
SECONDARY SORT:
MANUFACTURER
GENERATE REPORT
492
494
500
496
498
490

Fig.22.

PREVENTATIVE MAINTENANCE TRACKING: RESULTS
PREVENTATIVE MAINTENANCE FOR CLUBX-03 AS OF XX/XX/XXXX.

524 PM RECOMMENDATION KEY: FD - FLIP DECK; RW = REFILL WAX; CS = CLEAN SURFACES; V = VACUUM; WD = WAX DECK.

512

	502 MANU-FACTURER	503 TYPE	504 MODEL	505 OWNER DESCRIPTION	506 SERIAL #	507 INSTALL DATE	508 USAGE HOURS	509 MILES/ STRIDES	510 PM RECOMM.	VIEW SERVICE REPORT
	BRAND W	ELLIPTICAL	146	EOIx7	31P0057	01/15/02	5000.33 HRS	701,120	CS	511
	BRAND W	ELLIPTICAL	146	EOIx9	31P0058	01/15/02	806.00 HRS	125,736	CS	
	BRAND W	ELLIPTICAL	146	EOIx4	31P0154	01/15/02	6006.34 HRS	750,750	CS	
	BRAND Y	ELLIPTICAL	1500HR	EOIx1	31P0059	01/15/02	4701.64 HRS	705,150	CS	
	BRAND Y	ELLIPTICAL	1500HR	EOIx2	31P0062	01/15/02	3201 HRS	512,160	CS	
	BRAND W	TREADMILL	156	EOIx23	31P0117	01/15/02	3488 HRS	10,200	FD, CS	
	BRAND W	TREADMILL	156	EOIx15	31P0051	01/15/02	4004.04 HRS	12,012	FD, CS	
	BRAND W	TREADMILL	156	EOIx14	31P0070	01/15/02	5006.34 HRS	15,018	FD, CS	
	BRAND Y	TREADMILL	1500HR	EOIx9	31P0062	01/15/02	3002.34 HRS	9,006	FD, CS	

501

Fig. 23.

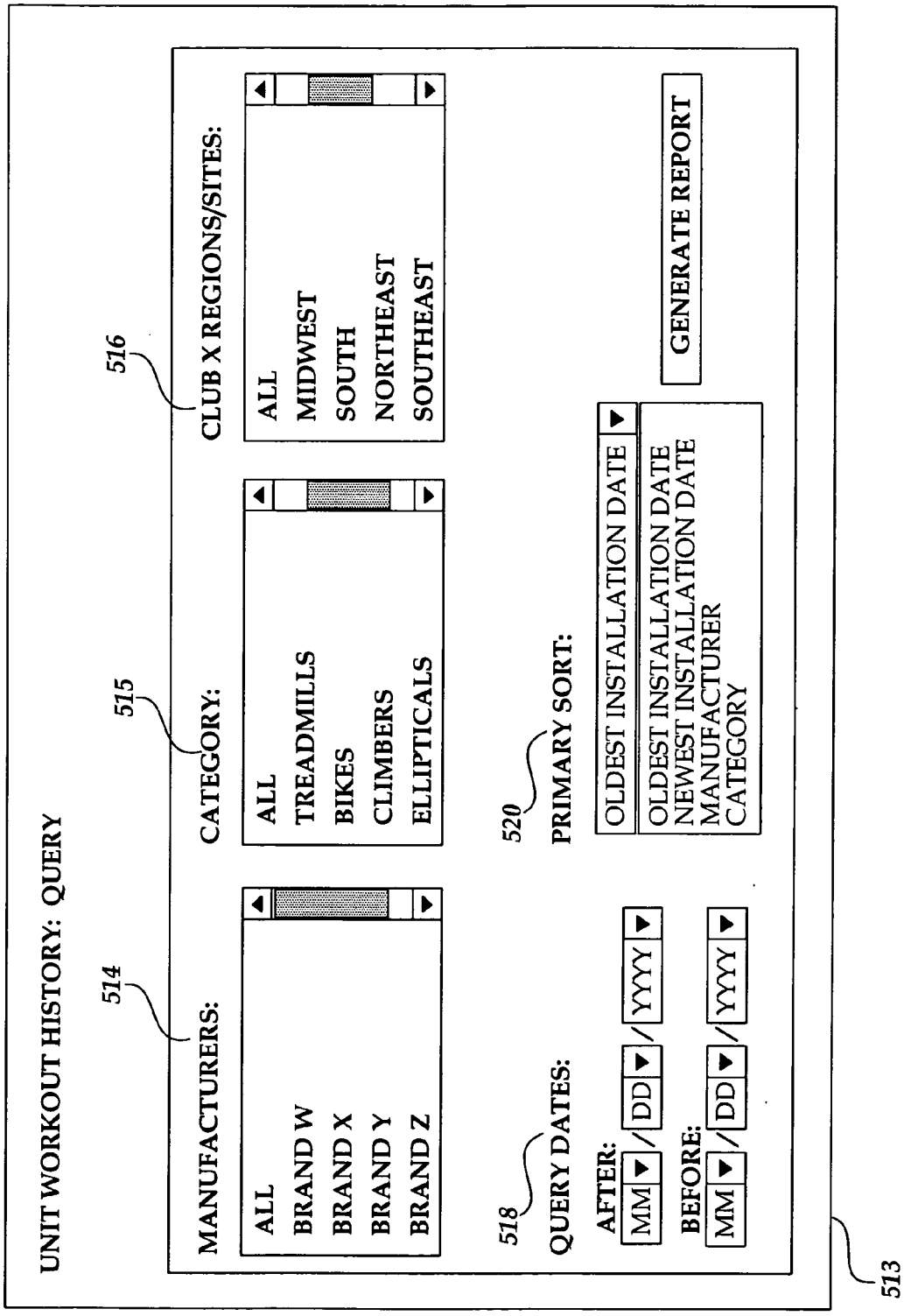

UNIT WORKOUT HISTORY: QUERY
514
MANUFACTURERS:
ALL
BRAND W
BRAND X
BRAND Y
BRAND Z
515
CATEGORY:
ALL
TREADMILLS
BIKES
CLIMBERS
ELLIPTICALS
516
CLUB X REGIONS/SITES:
ALL
MIDWEST
SOUTH
NORTHEAST
SOUTHEAST
518
QUERY DATES:
AFTER:
MM / DD / YYYY
BEFORE:
MM / DD / YYYY
520
PRIMARY SORT:
OLDEST INSTALLATION DATE
OLDEST INSTALLATION DATE
NEWEST INSTALLATION DATE
MANUFACTURER
CATEGORY
GENERATE REPORT
513

Fig.24.

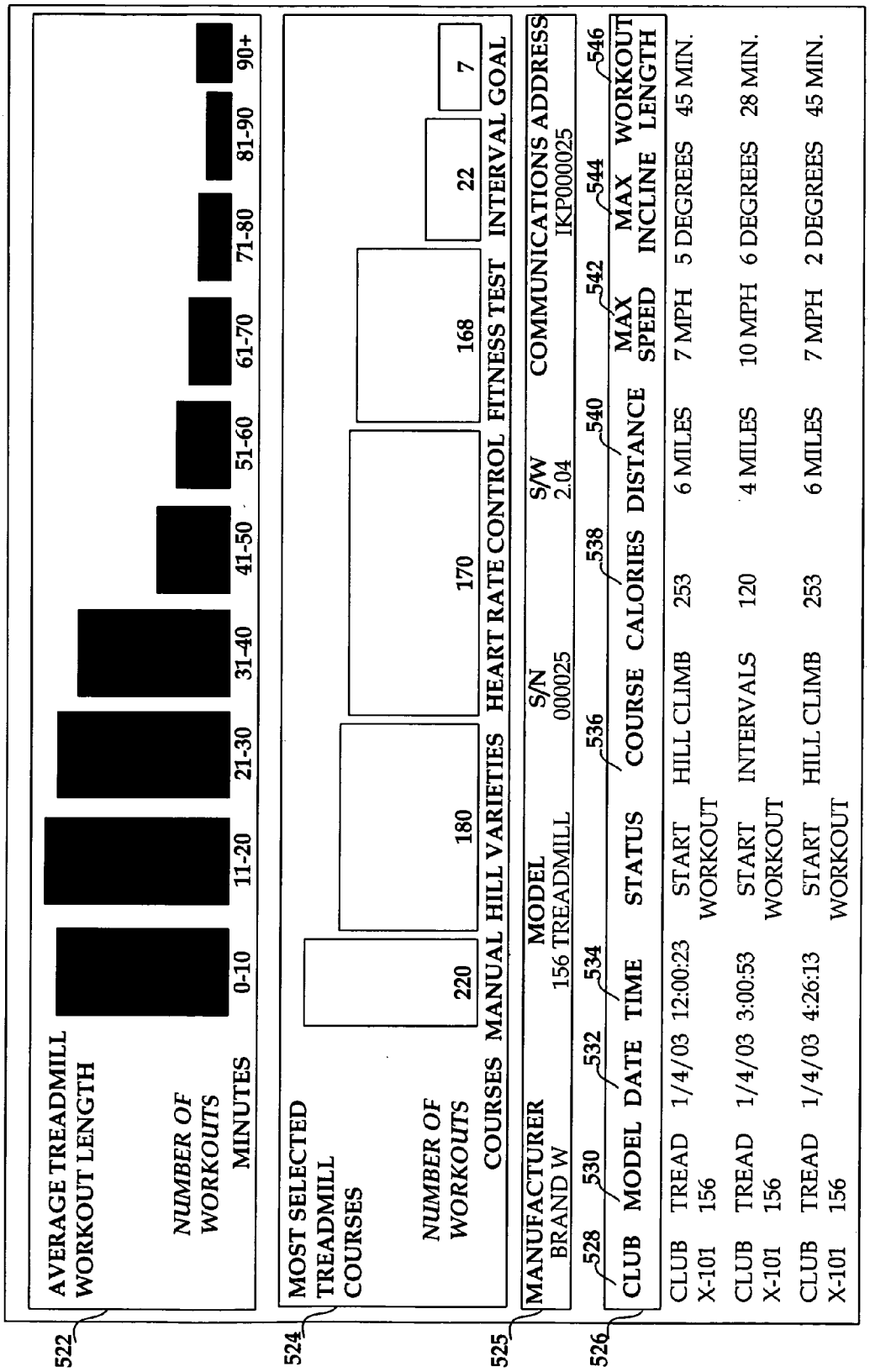

522
AVERAGE TREADMILL WORKOUT LENGTH
NUMBER OF WORKOUTS
MINUTES
0-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
90+
524
MOST SELECTED TREADMILL COURSES
NUMBER OF WORKOUTS
COURSES
MANUAL
HILL VARIETIES
HEART RATE CONTROL
FITNESS TEST
INTERVAL GOAL
220
180
170
168
22
7
525
MANUFACTURER
BRAND W
MODEL
156 TREADMILL
S/N
000025
S/W
2.04
COMMUNICATIONS ADDRESS
IKP000025
526
528
530
532
534
536
538
540
542
544
546
CLUB
MODEL
DATE
TIME
STATUS
COURSE
CALORIES
DISTANCE
MAX SPEED
MAX INCLINE
WORKOUT LENGTH
CLUB X-101 TREAD 156 1/4/03 12:00:23 START WORKOUT HILL CLIMB 253 6 MILES 7 MPH 5 DEGREES 45 MIN.
CLUB X-101 TREAD 156 1/4/03 3:00:53 START WORKOUT INTERVALS 120 4 MILES 10 MPH 6 DEGREES 28 MIN.
CLUB X-101 TREAD 156 1/4/03 4:26:13 START WORKOUT HILL CLIMB 253 6 MILES 7 MPH 2 DEGREES 45 MIN.

Fig. 25.

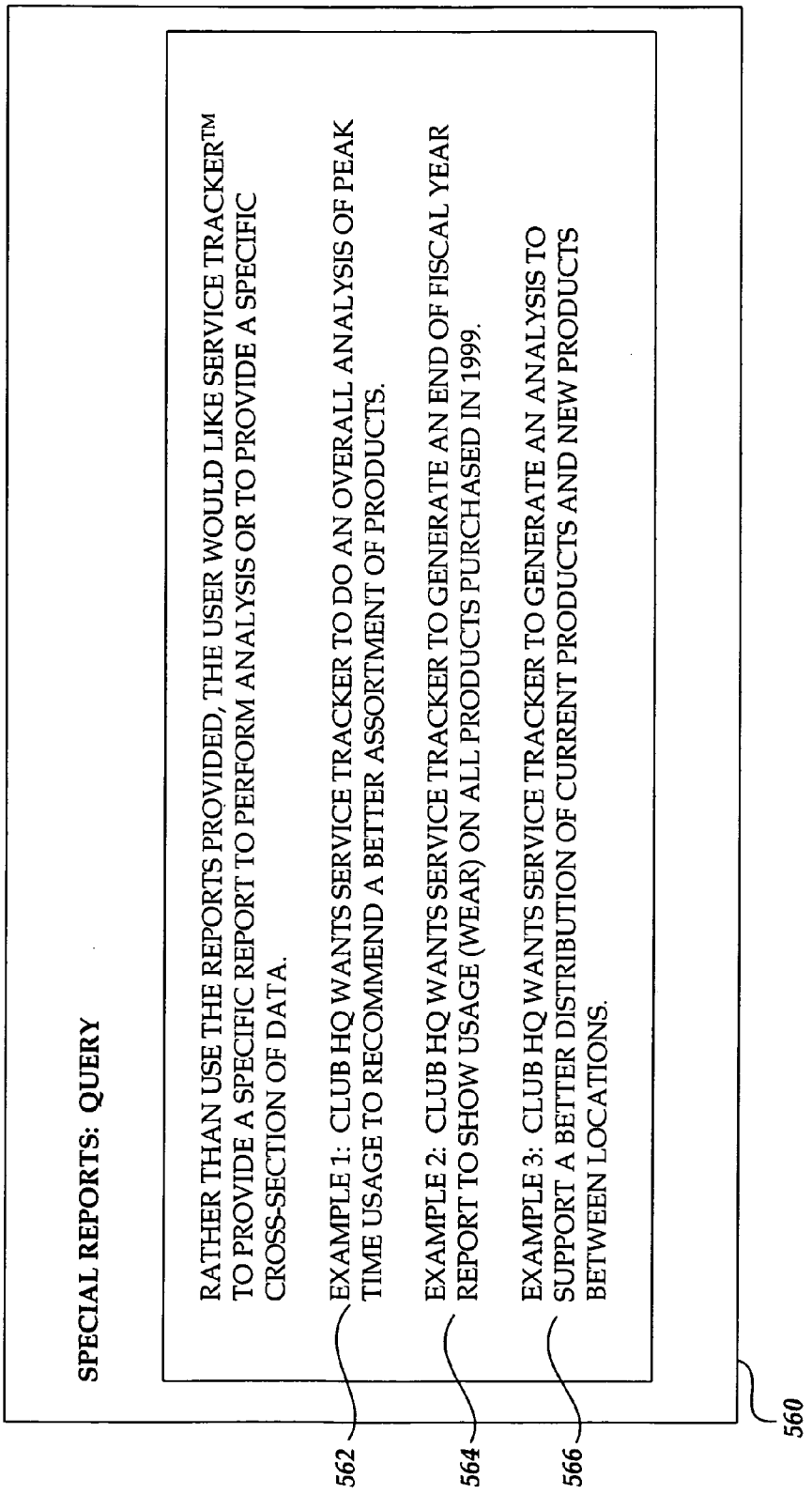

SPECIAL REPORTS: QUERY
RATHER THAN USE THE REPORTS PROVIDED, THE USER WOULD LIKE SERVICE TRACKER™ TO PROVIDE A SPECIFIC REPORT TO PERFORM ANALYSIS OR TO PROVIDE A SPECIFIC CROSS-SECTION OF DATA.
EXAMPLE 1: CLUB HQ WANTS SERVICE TRACKER TO DO AN OVERALL ANALYSIS OF PEAK TIME USAGE TO RECOMMEND A BETTER ASSORTMENT OF PRODUCTS.
EXAMPLE 2: CLUB HQ WANTS SERVICE TRACKER TO GENERATE AN END OF FISCAL YEAR REPORT TO SHOW USAGE (WEAR) ON ALL PRODUCTS PURCHASED IN 1999.
EXAMPLE 3: CLUB HQ WANTS SERVICE TRACKER TO GENERATE AN ANALYSIS TO SUPPORT A BETTER DISTRIBUTION OF CURRENT PRODUCTS AND NEW PRODUCTS BETWEEN LOCATIONS.
562
564
566
560

Fig. 26.

TROUBLESHOOTING SERVICES:
TROUBLESHOOTING SERVICES CAN HELP YOU FIND MORE INFORMATION ABOUT THE MOST COMMON MAINTENANCE AND SERVICE ISSUE FOR BRAND X COMMERCIAL EQUIPMENT. STARTING FROM THIS PAGE, YOU WILL BE ABLE TO FIND A KNOWLEDGE BASE OF KNOWN ISSUES AND THEIR RECOMMENDED ACTIONS, AS WELL AS THE RESOURCES TO CONTACT A SERVICE TECHNICIAN OR ORDER PARTS.

FOR MORE PRODUCT INFORMATION AND A DIAGRAM OF PARTS, PLEASE CHOOSE ONE OF THE RED FEATURE AREAS FROM THE PRODUCT.

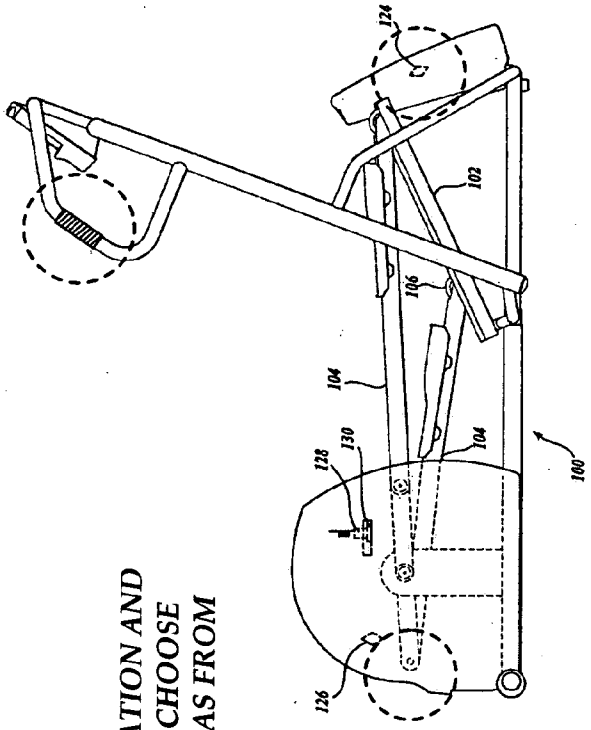


Fig.27.

ALL UNIT STATUS
DISPLAYING RECORDS 1 THROUGH 21 OF 21 RECORDS FOUND

592 578 580 582 584 586 588 590

	MODEL	TYPE	I.D. NO.	CURRENT STATUS	CURRENT ERROR STATUS	ERROR E-MAIL SENT	LAST REPLY
	156	EFX	E007	ACTIVE	--	--	10/9/2002 12:37:24
	166	TREAD	T012	UNLINKED	--	--	10/9/2002 12:37:32
	146	EFX	E010	IDLE	--	--	10/9/2002 12:37:43
	156	EFX	E101	ACTIVE	--	--	10/9/2002 12:37:32
	156	TREAD	T121	ACTIVE	--	--	10/9/2002 12:37:51
	156	TREAD	T056	ERROR	26 - TREAD ERROR; ERRATIC SPEED SENSOR	YES	10/9/2002 12:36:05
	134	EFX	E037	ACTIVE	--	--	10/9/2002 12:36:34
	156	EFX	E019	IDLE	--	--	10/9/2002 12:36:45
	146	EFX	E026	ACTIVE	--	--	10/9/2002 12:36:48
	134	TREAD	T087	ACTIVE	--	--	10/9/2002 12:36:52

577

Fig.28.

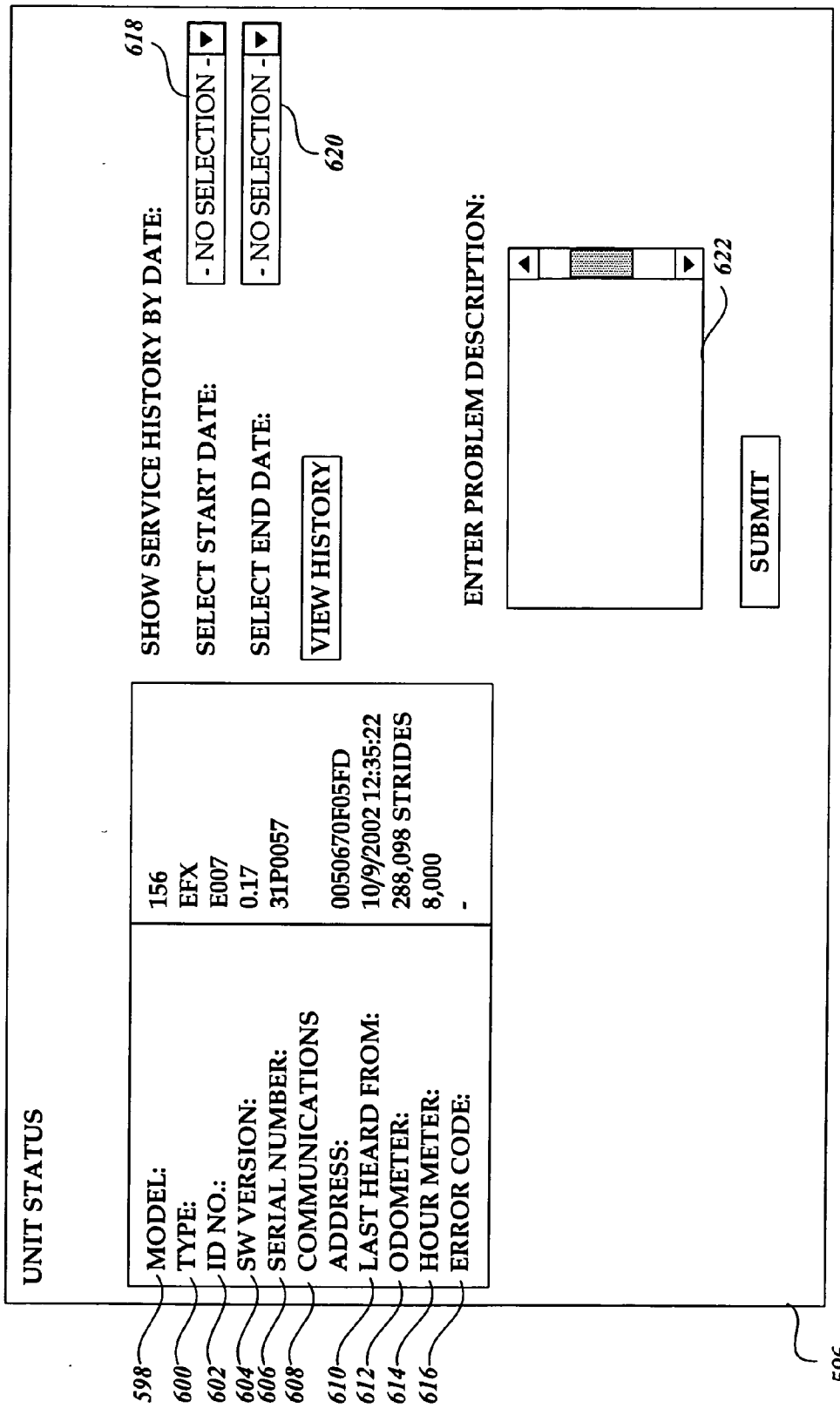

UNIT STATUS
MODEL: 156
TYPE: EFX
ID NO.: E007
SW VERSION: 0.17
SERIAL NUMBER: 31P0057
COMMUNICATIONS ADDRESS: 0050670F05FD
LAST HEARD FROM: 10/9/2002 12:35:22
ODOMETER: 288,098 STRIDES
HOUR METER: 8,000
ERROR CODE: -
SHOW SERVICE HISTORY BY DATE:
SELECT START DATE:
- NO SELECTION -
SELECT END DATE:
- NO SELECTION -
VIEW HISTORY
ENTER PROBLEM DESCRIPTION:
SUBMIT
598
600
602
604
606
608
610
612
614
616
618
620
622
596

Fig. 29.

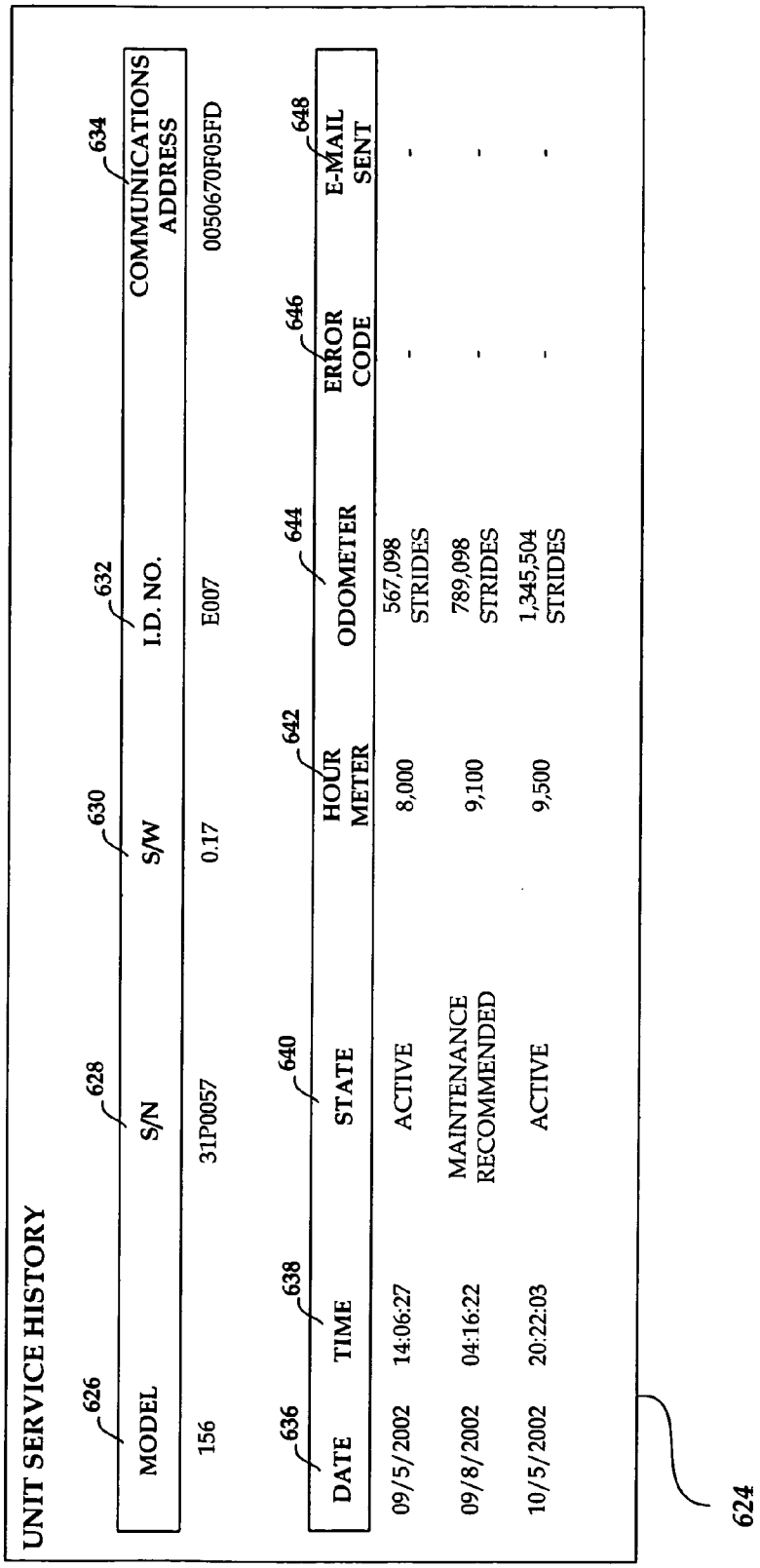

UNIT SERVICE HISTORY
626
628
630
632
634
MODEL
S/N
S/W
I.D. NO.
COMMUNICATIONS ADDRESS
156
31P0057
0.17
E007
0050670F05FD
636
638
640
642
644
646
648
DATE
TIME
STATE
HOUR METER
ODOMETER
ERROR CODE
E-MAIL SENT
09/5/2002
14:06:27
ACTIVE
8,000
567,098 STRIDES
-
-
09/8/2002
04:16:22
MAINTENANCE RECOMMENDED
9,100
789,098 STRIDES
-
-
10/5/2002
20:22:03
ACTIVE
9,500
1,345,504 STRIDES
-
-
624

Fig.30.

682

680

PREVENTATIVE MAINTENANCE REPORT FOR: MY CLUB - LOCATION
10/11/03

	MODEL (662)	TYPE (664)	I.D.NO. (666)	SERIAL # (668)	INSTALL DATE (670)	USAGE HOURS (672)	MILES/ STRIDES (674)	MAINT. STATUS (676)	DATE (678)
	156	EFX	E007	31P0057	01/15/02	5000.33 HRS	44684	POSTPONED	06/05/02
	166	TREADMILL	T012	31P0058	01/15/02	806.00 HRS	7984	POSTPONED	06/05/02
	146	EFX	E010	31P0154	01/15/02	6006.34 HRS	6558434	COMPLETED	06/05/02
	156	EFX	E101	31P0059	01/15/02	4701.64 HRS	4268467	COMPLETED	06/05/02
	156	TREADMILL	T121	31P0062	01/15/02	76606.34 HRS	65952	POSTPONED	07/15/02
	156	TREADMILL	T056	31P0117	01/15/02	6606.34 HRS	56784	COMPLETED	07/15/02
	134	EFX	E037	31P0051	01/15/02	4004.04 HRS	3058234	COMPLETED	07/15/02
	156	EFX	E014	31P0070	01/15/02	5006.34 HRS	5098456	COMPLETED	07/15/02
	146	EFX	E026	31P0062	01/15/02	3002.34 HRS	2048154	COMPLETED	07/15/02
	134	TREADMILL	T087	31P0042	01/15/02	2001.31 HRS	12984	COMPLETED	07/15/02

660

Fig.31.

CURRENT USAGE

730

	MODEL (714)	TYPE (716)	I.D.NO. (718)	STATUS (720)	CURRENT SPEED (722)	CURRENT INCLINE (724)	CURRENT RESISTANCE (726)	CURRENT COURSE (728)
	156	EFX	E007	ACTIVE	104 STRIDES/ MIN.	12% GRADE	1	MANUAL
	134	EFX	E212	ACTIVE	44 STRIDES/ MIN.	2% GRADE	1	CROSS-TRAINING
	154	TREADMILL	T316	ACTIVE	14 MILES/HR	8% GRADE	3	INTERVAL
	146	EFX	E101	ACTIVE	124 STRIDES/ MIN.	4% GRADE	2	GLUTEALS
	146	EFX	E010	ACTIVE	155 STRIDES/ MIN.	4% GRADE	1	GLUTEALS
	166	TREADMILL	T012	UNLINKED	--	--	--	--
	156	TREADMILL	T121	ACTIVE	10 MILES/HR	7% GRADE	--	GOAL
	146	EFX	E026	IDLE	--	--	--	--
	156	EFX	E019	ACTIVE	14 STRIDES/ MIN.	0% GRADE	3	GLUTEALS
	156	EFX	E056	ACTIVE	120 STRIDES/ MIN.	5% GRADE	2	CROSS-TRAINING

712

Fig.32.

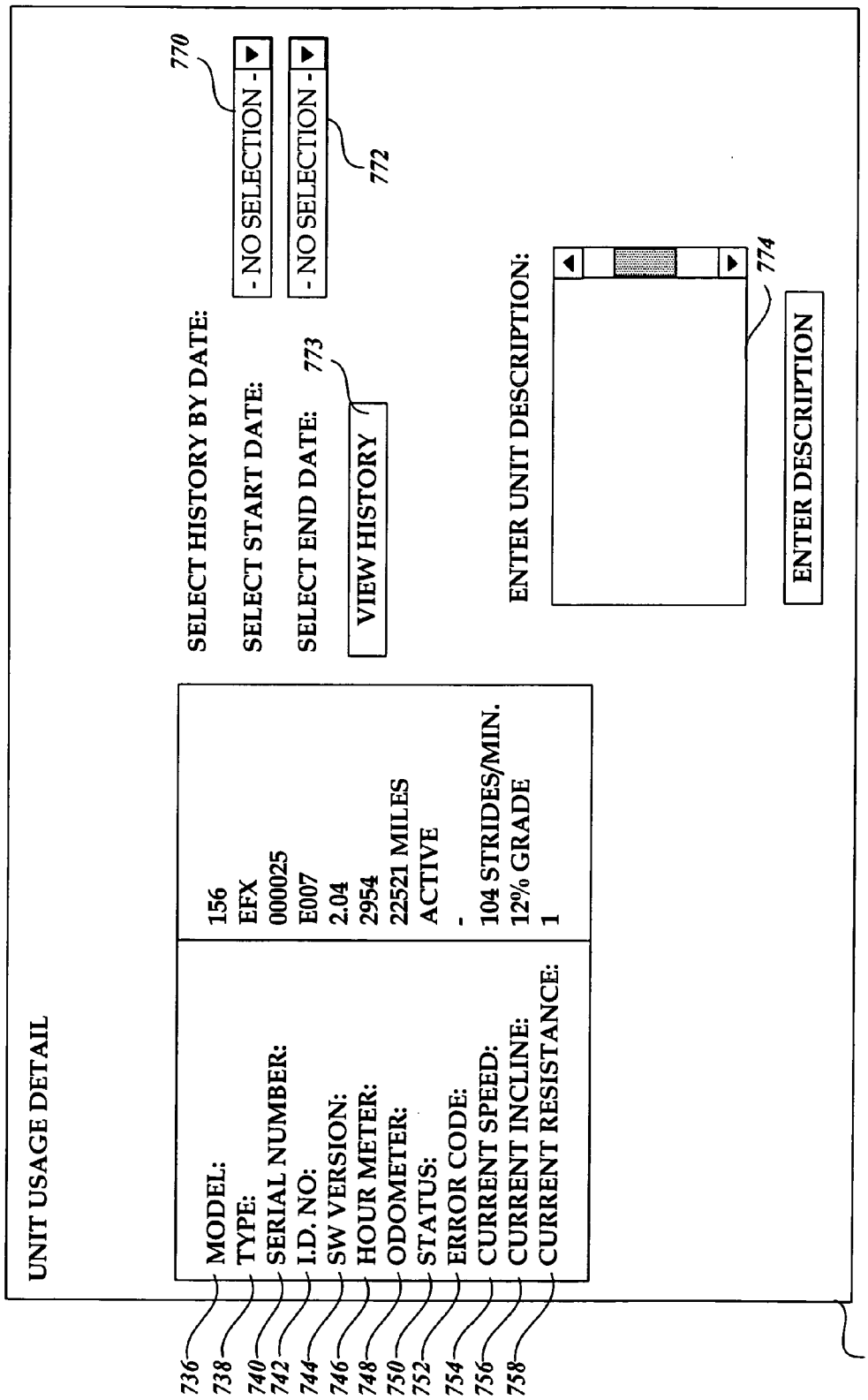

UNIT USAGE DETAIL
MODEL: 156
TYPE: EFX
SERIAL NUMBER: 000025
I.D. NO: E007
SW VERSION: 2.04
HOUR METER: 2954
ODOMETER: 22521 MILES
STATUS: ACTIVE
ERROR CODE: -
CURRENT SPEED: 104 STRIDES/MIN.
CURRENT INCLINE: 12% GRADE
CURRENT RESISTANCE: 1
SELECT HISTORY BY DATE:
SELECT START DATE:
- NO SELECTION -
SELECT END DATE:
- NO SELECTION -
VIEW HISTORY
ENTER UNIT DESCRIPTION:
ENTER DESCRIPTION
736
738
740
742
744
746
748
750
752
754
756
758
770
772
773
774
734

Fig.33.

780

UNIT USAGE HISTORY

782 MODEL	784 S/N	786 S/W	788 COMMUNICATIONS ADDRESS
156	000025	2.04	IKP000025

792 DATE	790 TIME	STATUS	794 COURSE	796 WORKOUT CALORIES	798 WORKOUT DISTANCE	800 WORKOUT TIME
10/10/2002	20:22:03	START WORKOUT	MANUAL	490	6021 STRIDES	48 MIN.
10/10/2002	14:30:00	START WORKOUT	CROSS-COUNTRY	350	4021 STRIDES	32 MIN.
10/10/2002	13:12:54	START WORKOUT	WEIGHT LOSS	650	7567 STRIDES	58 MIN.
10/10/2002	11:09:19	START WORKOUT	MANUAL	220	2001 STRIDES	14 MIN.
10/10/2002	10:22:03	START WORKOUT	INTERVAL	422	4921 STRIDES	26 MIN.
10/10/2002	08:15:03	START WORKOUT	HILL CLIMB	777	6845 STRIDES	37 MIN.
10/09/2002	20:22:03	START WORKOUT	MANUAL	490	6021 STRIDES	48 MIN.
10/09/2002	14:30:00	START WORKOUT	CROSS-COUNTRY	350	4021 STRIDES	32 MIN.
10/09/2002	13:12:54	START WORKOUT	WEIGHT LOSS	650	7567 STRIDES	58 MIN.
10/09/2002	11:09:19	START WORKOUT	MANUAL	220	2001 STRIDES	14 MIN.
10/09/2002	10:22:03	START WORKOUT	INTERVAL	422	4921 STRIDES	26 MIN.
10/09/2002	08:15:03	START WORKOUT	HILL CLIMB	777	6845 STRIDES	37 MIN.

Fig.34.

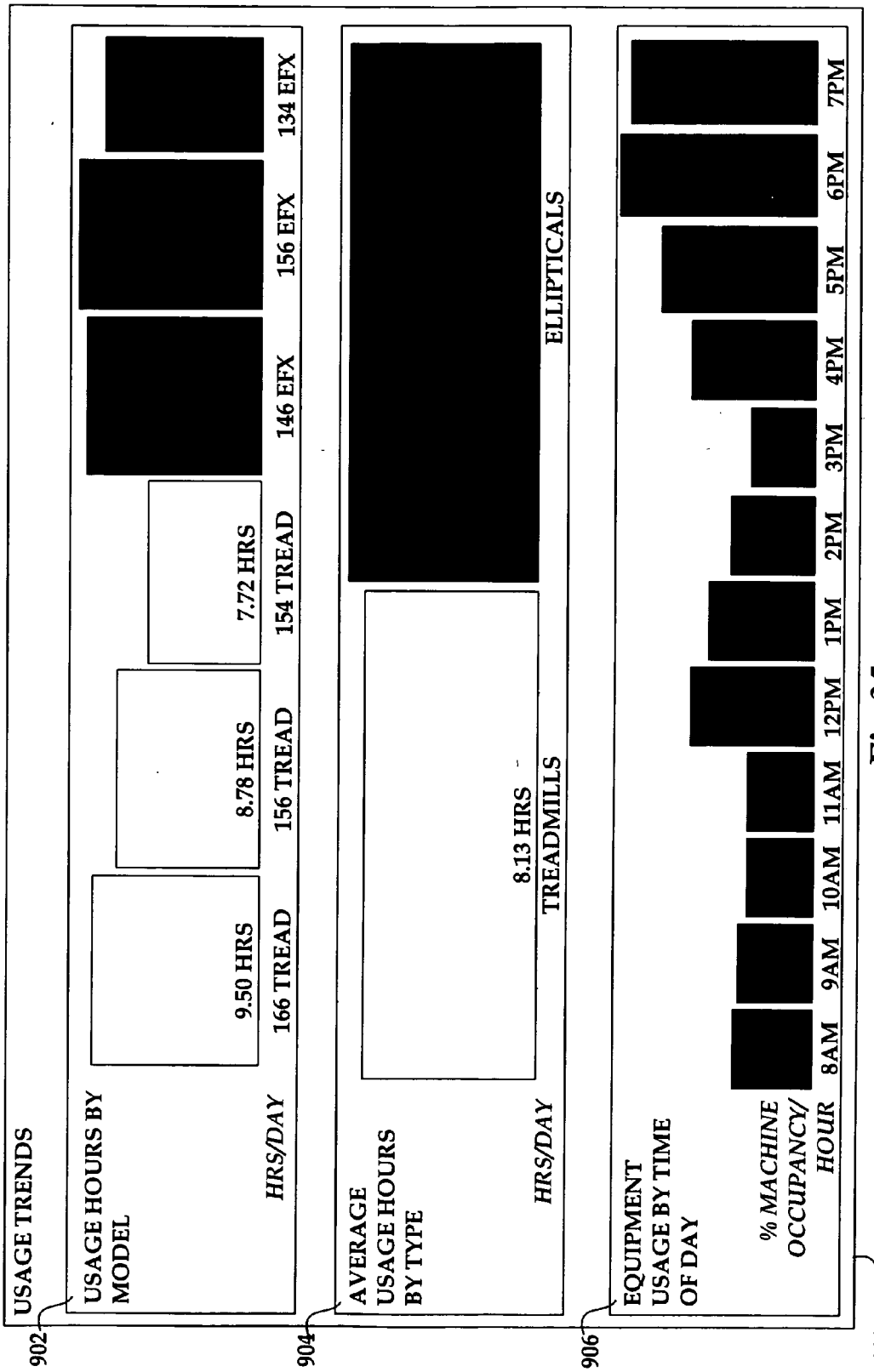

USAGE TRENDS
USAGE HOURS BY MODEL
HRS/DAY
9.50 HRS
8.78 HRS
7.72 HRS
166 TREAD
156 TREAD
154 TREAD
146 EFX
156 EFX
134 EFX
AVERAGE USAGE HOURS BY TYPE
HRS/DAY
8.13 HRS
TREADMILLS
ELLIPTICALS
EQUIPMENT USAGE BY TIME OF DAY
% MACHINE OCCUPANCY/ HOUR
8AM
9AM
10AM
11AM
12PM
1PM
2PM
3PM
4PM
5PM
6PM
7PM
902
904
906
900

Fig.35.

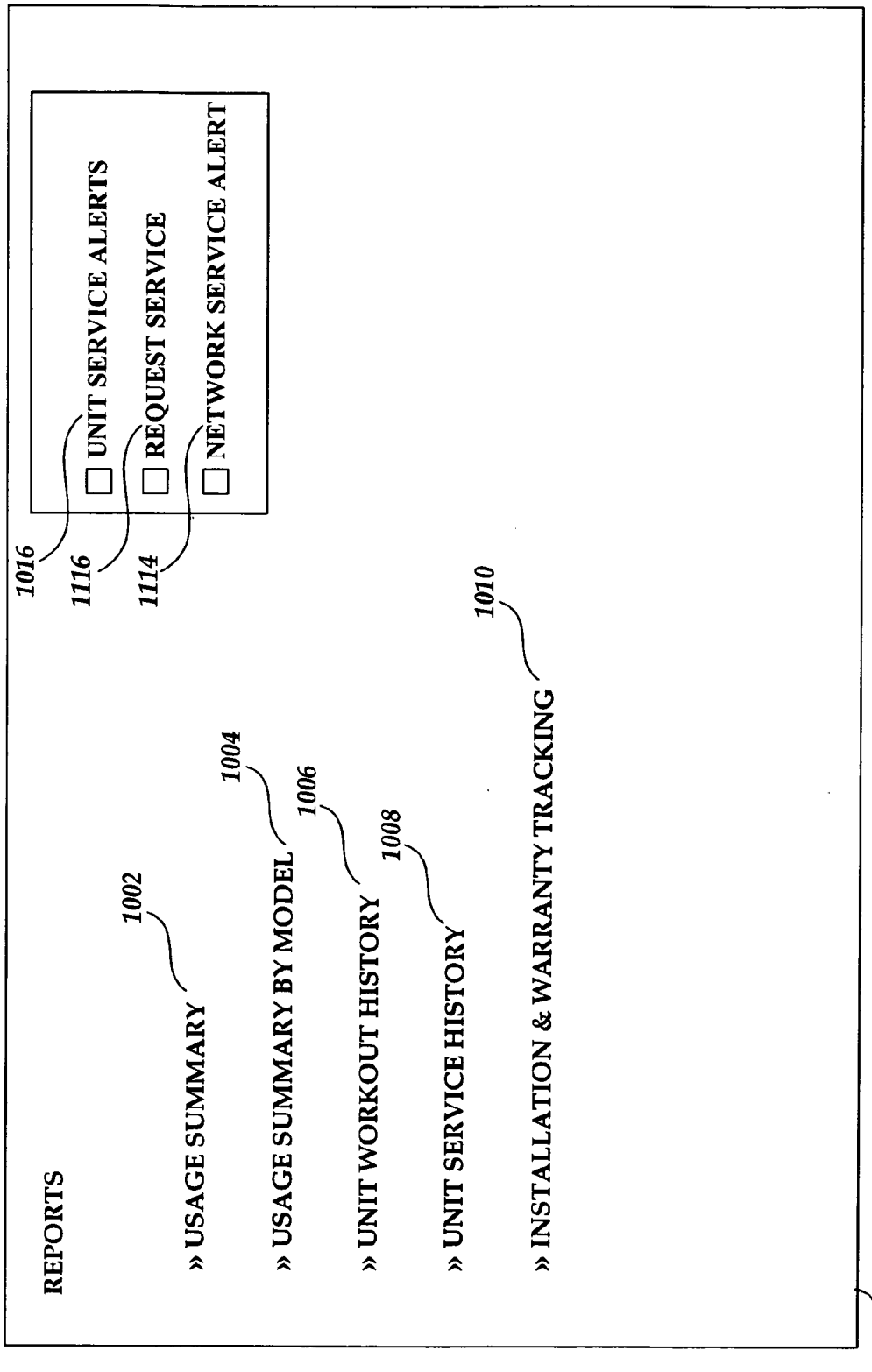

REPORTS
» USAGE SUMMARY
» USAGE SUMMARY BY MODEL
» UNIT WORKOUT HISTORY
» UNIT SERVICE HISTORY
» INSTALLATION & WARRANTY TRACKING
UNIT SERVICE ALERTS
REQUEST SERVICE
NETWORK SERVICE ALERT
1002
1004
1006
1008
1010
1016
1116
1114
1000

Fig.36.

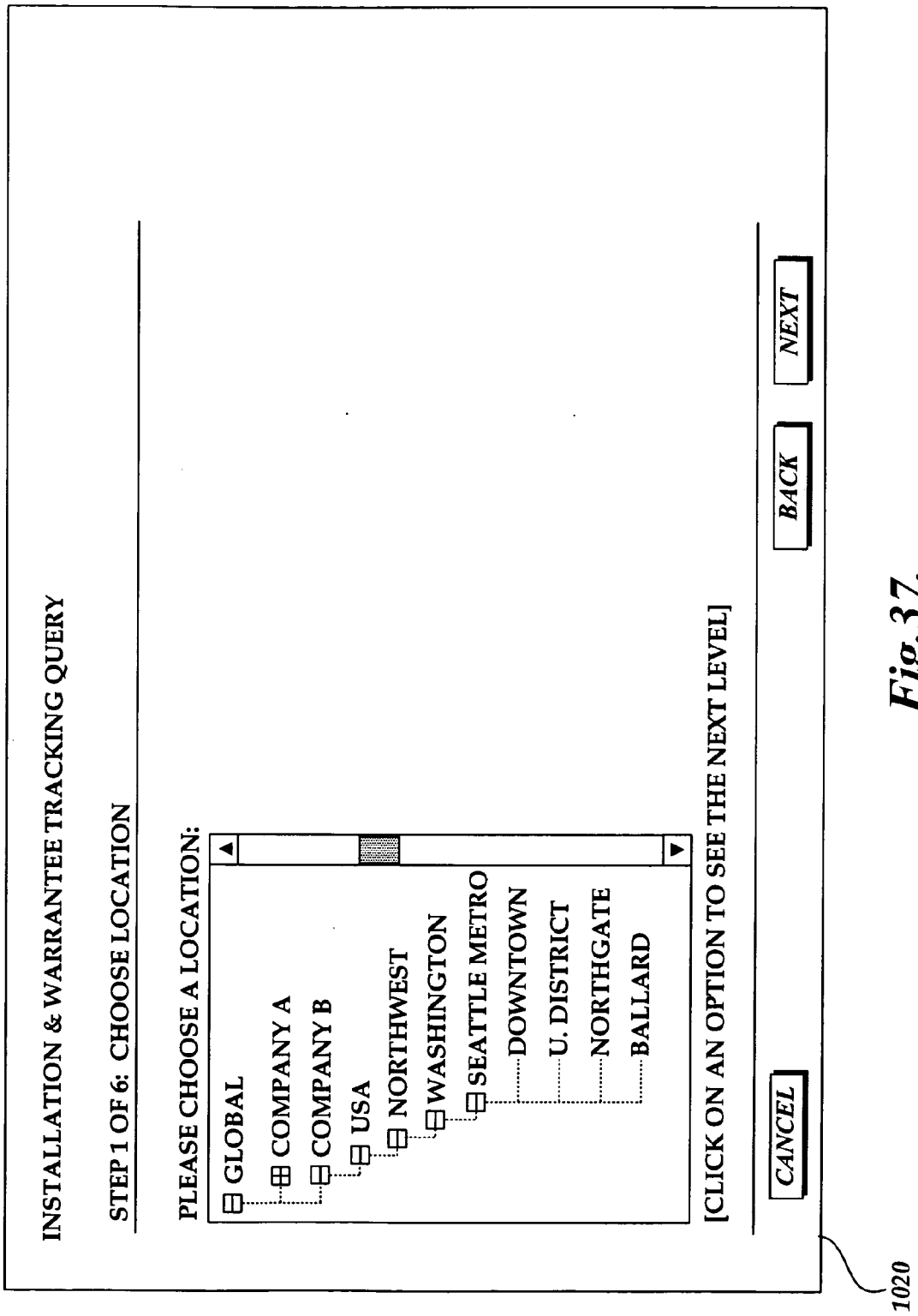

INSTALLATION & WARRANTEE TRACKING QUERY
STEP 1 OF 6: CHOOSE LOCATION
PLEASE CHOOSE A LOCATION:
GLOBAL
COMPANY A
COMPANY B
USA
NORTHWEST
WASHINGTON
SEATTLE METRO
DOWNTOWN
U. DISTRICT
NORTHGATE
BALLARD
[CLICK ON AN OPTION TO SEE THE NEXT LEVEL]
CANCEL
BACK
NEXT
1020

Fig.37.

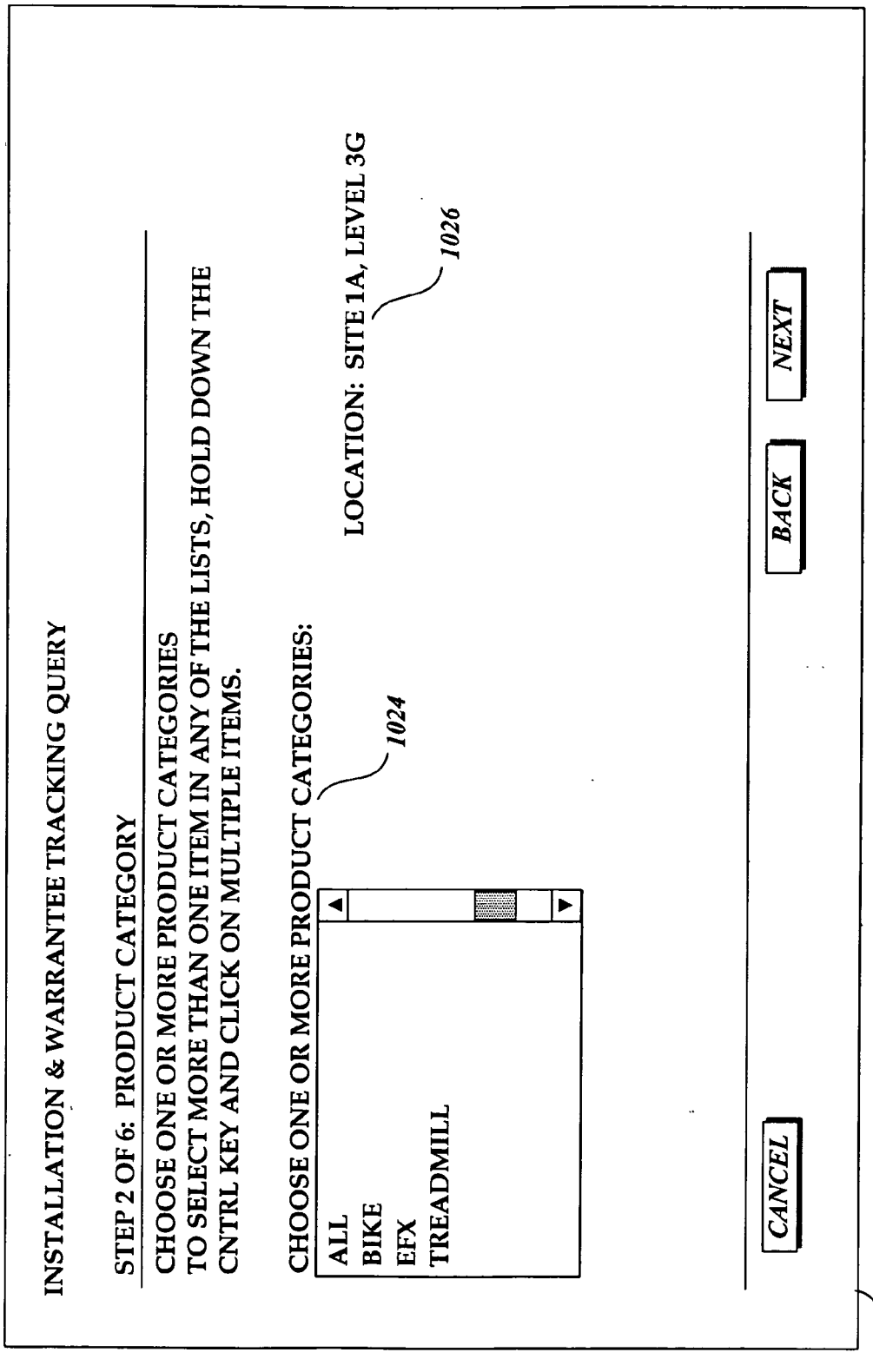

INSTALLATION & WARRANTEE TRACKING QUERY
STEP 2 OF 6: PRODUCT CATEGORY
CHOOSE ONE OR MORE PRODUCT CATEGORIES
TO SELECT MORE THAN ONE ITEM IN ANY OF THE LISTS, HOLD DOWN THE
CNTRL KEY AND CLICK ON MULTIPLE ITEMS.
CHOOSE ONE OR MORE PRODUCT CATEGORIES:
1024
ALL
BIKE
EFX
TREADMILL
LOCATION: SITE 1A, LEVEL 3G
1026
CANCEL
BACK
NEXT
1022

Fig.38.

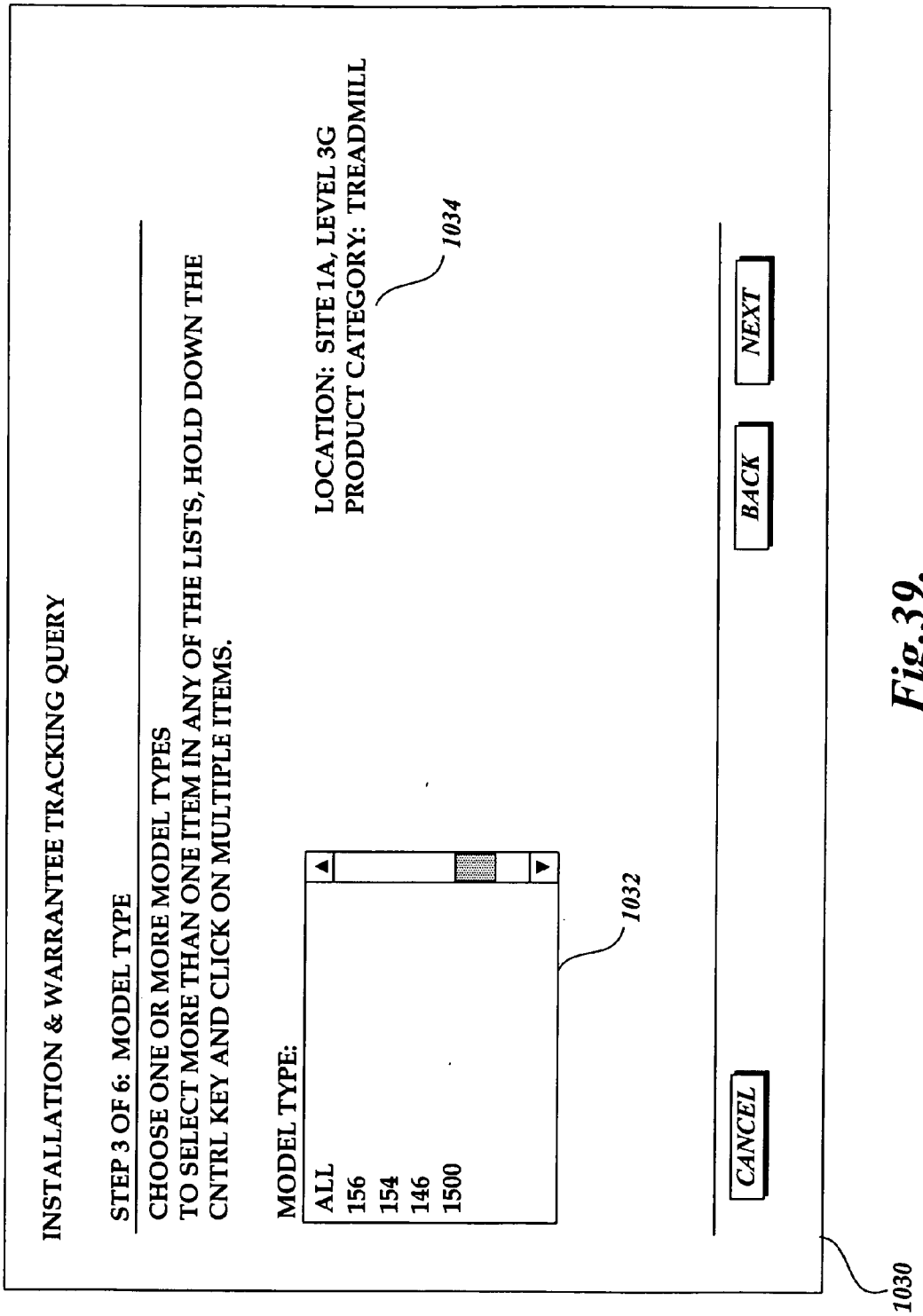

INSTALLATION & WARRANTEE TRACKING QUERY
STEP 3 OF 6: MODEL TYPE
CHOOSE ONE OR MORE MODEL TYPES
TO SELECT MORE THAN ONE ITEM IN ANY OF THE LISTS, HOLD DOWN THE
CNTRL KEY AND CLICK ON MULTIPLE ITEMS.
MODEL TYPE:
ALL
156
154
146
1500
1032
LOCATION: SITE 1A, LEVEL 3G
PRODUCT CATEGORY: TREADMILL
1034
CANCEL
BACK
NEXT
1030

Fig.39.

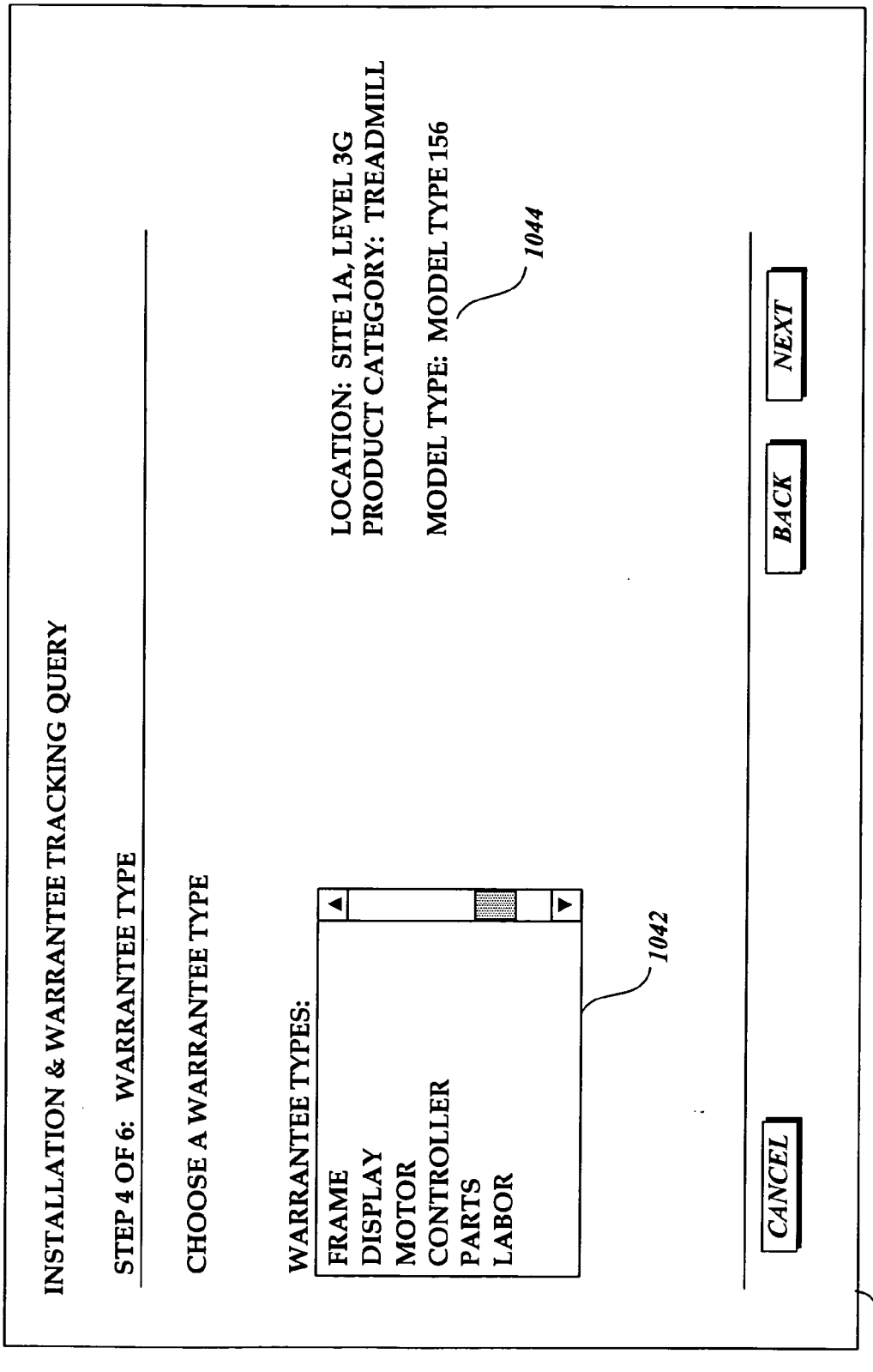

INSTALLATION & WARRANTEE TRACKING QUERY
STEP 4 OF 6: WARRANTEE TYPE
CHOOSE A WARRANTEE TYPE
WARRANTEE TYPES:
FRAME
DISPLAY
MOTOR
CONTROLLER
PARTS
LABOR
1042
LOCATION: SITE 1A, LEVEL 3G
PRODUCT CATEGORY: TREADMILL
MODEL TYPE: MODEL TYPE 156
1044
CANCEL
BACK
NEXT
1040

Fig.40.

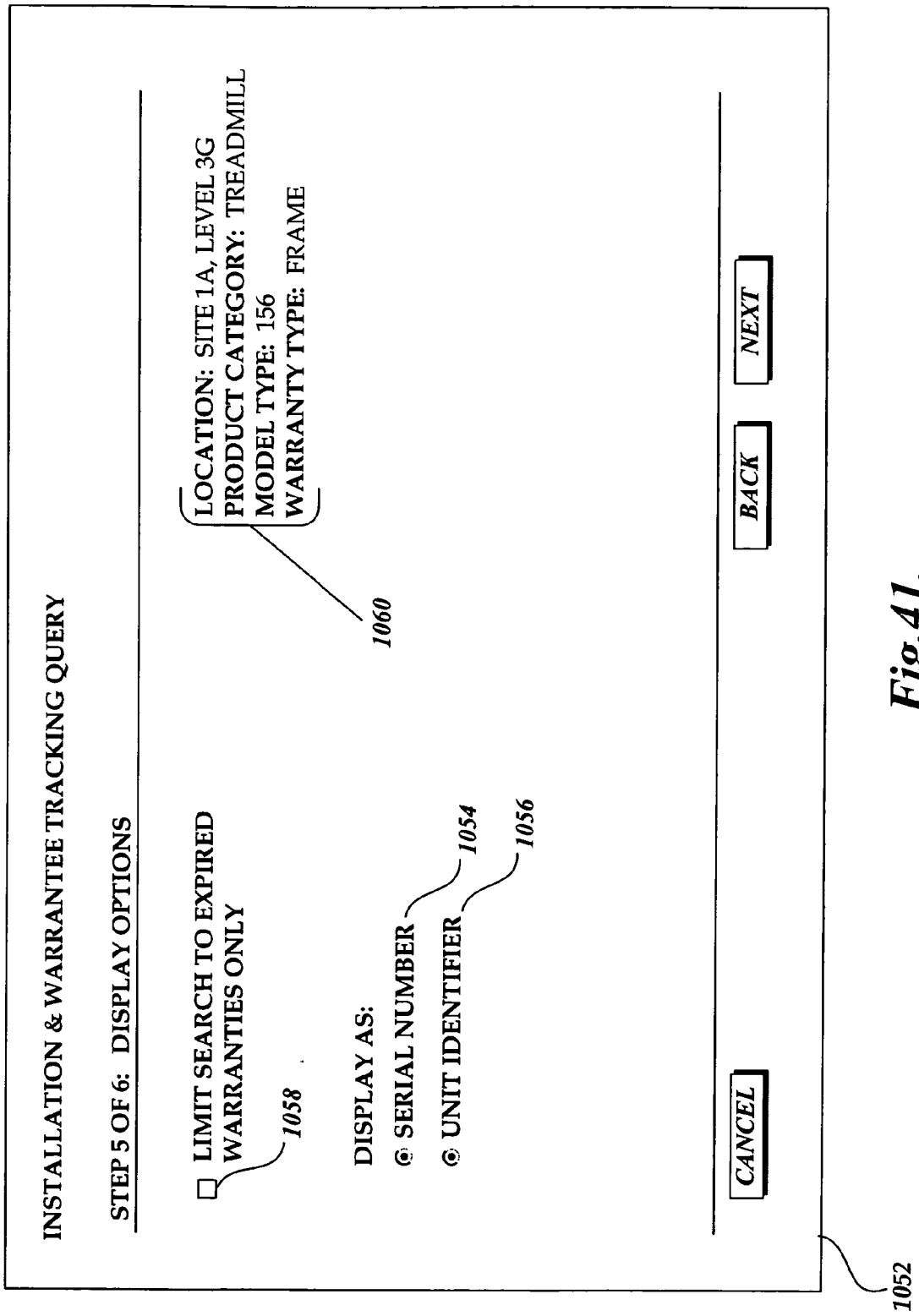

INSTALLATION & WARRANTEE TRACKING QUERY
STEP 5 OF 6: DISPLAY OPTIONS
LIMIT SEARCH TO EXPIRED WARRANTIES ONLY
1058
LOCATION: SITE 1A, LEVEL 3G
PRODUCT CATEGORY: TREADMILL
MODEL TYPE: 156
WARRANTY TYPE: FRAME
1060
DISPLAY AS:
SERIAL NUMBER
UNIT IDENTIFIER
1054
1056
CANCEL
BACK
NEXT
1052

Fig.41.

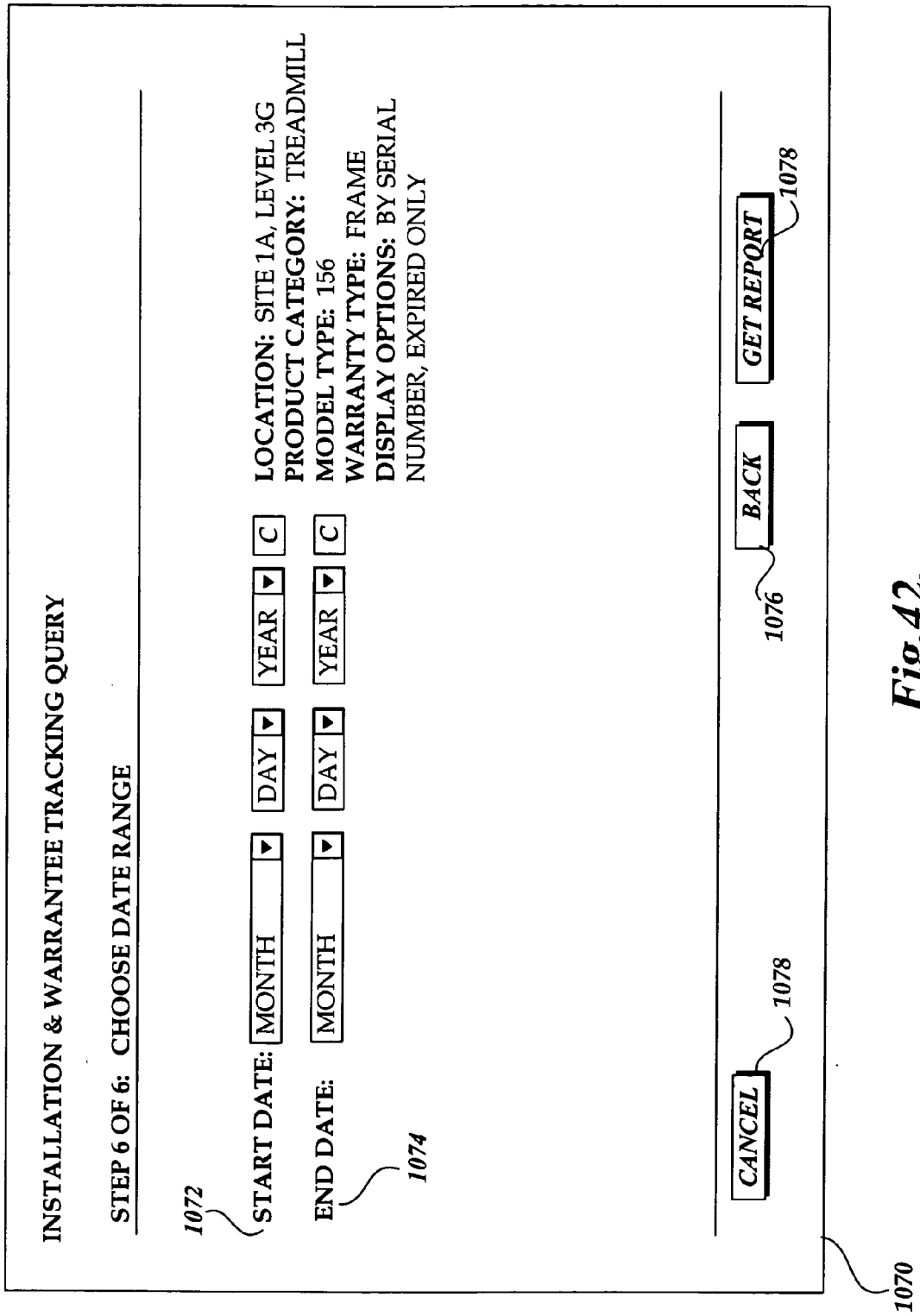

INSTALLATION & WARRANTEE TRACKING QUERY
STEP 6 OF 6: CHOOSE DATE RANGE
1072
START DATE: MONTH DAY YEAR C
END DATE: MONTH DAY YEAR C
1074
LOCATION: SITE 1A, LEVEL 3G
PRODUCT CATEGORY: TREADMILL
MODEL TYPE: 156
WARRANTY TYPE: FRAME
DISPLAY OPTIONS: BY SERIAL NUMBER, EXPIRED ONLY
CANCEL
1078
BACK
1076
GET REPORT
1078
1070

Fig. 42.

INSTALLATION AND WARRANTY REPORT

LOCATION: [LOCATION OR SINGLE SITE SELECTION]
WARRANTY EXPIRATION TIME FRAME: [MM/DD/YY TO MM/DD/YY]
PRODUCT CATEGORY(S): [SELECTED CATEGORIES]
MODEL TYPE(S): [SELECTED MODELS]

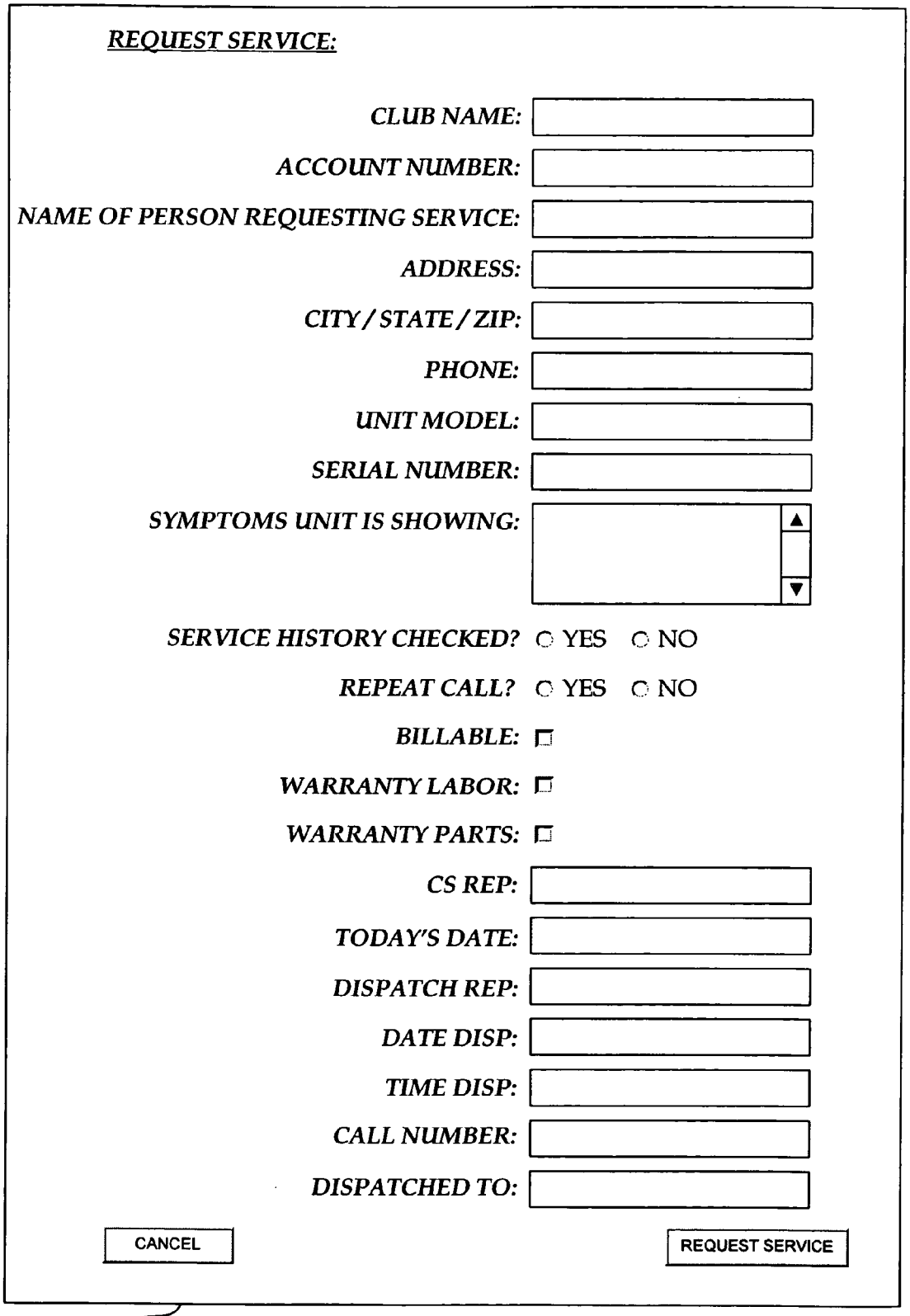
1082 PRODUCT CATEGORY	1084 MODEL TYPE	1086 LOCATION	1088 UNIT IDENTIFIER	1090 UNIT INSTALL DATE	WARRANTY EXPIRATION DATES					
					1100 FRAME	1102 DISPLAY	1098 PARTS	1108 LABOR	1110 MOTOR	1104 MOTOR FAN
TREADMILL	156	CLUB X		12/13/02	12/13/06	12/13/05	12/13/02	12/13/04	12/13/04	12/13/04
TREADMILL	156	CLUB X		1/14/03	1/15/07	1/15/06	1/15/03	1/15/03	1/15/05	1/15/05
TREADMILL	156	CLUB X		3/2/03	3/2/07	3/2/06	3/2/05	3/2/05	3/2/05	3/2/05

1092 HOUR METER	1094 ODOMETER	1096 SERVICE HISTORY
22,400	89,000 MILES	VIEW
18,100	8,100 MILES	VIEW
15,300	72,100 MILES	VIEW

1106

1080

Fig. 43.


REQUEST SERVICE:
CLUB NAME:
ACCOUNT NUMBER:
NAME OF PERSON REQUESTING SERVICE:
ADDRESS:
CITY / STATE / ZIP:
PHONE:
UNIT MODEL:
SERIAL NUMBER:
SYMPTOMS UNIT IS SHOWING:
SERVICE HISTORY CHECKED? YES NO
REPEAT CALL? YES NO
BILLABLE:
WARRANTY LABOR:
WARRANTY PARTS:
CS REP:
TODAY'S DATE:
DISPATCH REP:
DATE DISP:
TIME DISP:
CALL NUMBER:
DISPATCHED TO:
CANCEL
REQUEST SERVICE

1200

Fig.44.

SERVICE TRACKING AND ALERTING SYSTEM FOR FITNESS EQUIPMENT

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This patent application claims the benefit of U.S. Provisional Patent Application No. 60/442,934, filed Jan. 26, 2003.

FIELD OF THE INVENTION

[0002] The present invention pertains to the servicing of exercise equipment, especially in clubs, gyms, and other facilities having large numbers of exercise equipment, and more particularly to a system for automatically obtaining service information from fitness equipment units and automatically sending service alerts to selected recipients when fitness equipment units require service or repair.

BACKGROUND OF THE INVENTION

[0003] In general, fitness facilities and clubs (such as Gold's Gym, Bally's, 24-Hour Fitness, etc.) obtain service information regarding their fitness equipment units (FEUs) via one of two methods. In the older method, when an FEU becomes inoperative, a patron typically alerts a manager or other personnel at the particular fitness facility. The manager then inspects the unit and determines whether a telephone call to a service provider is warranted. If so, the provider sends a serviceperson to the facility to diagnose and repair the problem. The unit is then put back in operation. The information regarding each of these events is sometimes manually tracked by the facility and/or the service provider.

[0004] In the second method, each FEU is equipped with a display screen and various internal monitoring components. The monitoring components determine when a problem exists within the FEU. The components then either report this information in the form of an error code displayed on the unit's screen or simply registers the problem on an internal interface board. When a particular FEU becomes inoperative, the patron alerts a facility employee of the problem. The employee then goes to the unit to determine whether a telephone call to the service provider is needed. If so, the provider sends a serviceperson to the facility to diagnose and fix the problem. The FEU is then put back in operation. As above, the information regarding each of these events is sometimes manually tracked by the facility and/or the service provider.

[0005] As will be appreciated, the current situation is labor intensive, costly, time-consuming, error-prone, and inefficient. In addition, and perhaps more importantly, the current system gives patrons a negative impression of the fitness facility because the patron is aware of a broken FEU. It also makes patrons irritated in that they have to either spend time reporting a broken unit or forego reporting it and feel guilty or disgusted. Moreover, the patron may have to wait until another similar FEU is available for use. Another disadvantage to the above system is that the type and frequency of problems experienced by a particular FEU is generally lost. This information has use in determining warranty rights and responsibilities as well as making FEU replacement decisions. In currently warranty reporting, the facility manager generally relies on anecdote and unsubstantiated impressions of the performance of a particular FEU.

[0006] Thus, a need exists for a more efficient service tracking and alerting system for FEUs at fitness facilities. A more ideal system would be capable of not only tracking such problem events, but also of immediately alerting at least the facility personnel when a problem has arisen. This way, the facility personnel can immediately post an "Out of Service" sign on the machine, and the patron will not have to become involved.

SUMMARY OF THE INVENTION

[0007] The present invention is directed to fulfilling these needs and others as described below. The present invention is a service tracking and alerting system for FEUs. Various aspects of the present invention are presented that may be used in combination or separately. In accordance with one aspect, an information tracking system includes a control server or ICS to gather real time service information from one or more FEUs via a wireless connection and to store the information in a temporary database. The service tracking system may include one or more subsystems of multiple ICSs linked to a remotely located accumulated data storage unit or silo having a permanent storage data base. The singular or multiple silos with their corresponding ICSs may be controlled, accessed and interrogated through an enterprise level platform having associated software and hardware. A service alert message may be generated and sent to one or more recipients should one or more of the FEUs experience a significant service event. A reporting interface allows users to access service information via the enterprise platform from the data storage units and/or the ICSs via the Internet or other type of network, including both real time and history service, usage, warranty, and other information.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The foregoing aspects and many of the attendant advantages of this invention will become more readily appreciated as the same become better understood by reference to the following detailed description, when taken in conjunction with the accompanying drawings, wherein:

[0009] **FIG. 1** is a schematic illustration of one embodiment an information tracking system, a service tracking system, a service alert messaging service, and a reporting interface, each formed in accordance with the present invention; and

[0010] **FIG. 2** is a schematic view of a portion of the system of the present invention shown in **FIG. 1**;

[0011] **FIG. 3** is a schematic view of a portion of the system of the present invention shown in **FIG. 2**;

[0012] **FIG. 4** is a schematic view of another portion of the system of the present invention shown in **FIG. 1**;

[0013] **FIG. 5** is a side elevational view of a fitness equipment unit that may be monitored through the system of the present invention;

[0014] **FIG. 6** is another fitness equipment unit that may be monitored through the system of the present invention;

[0015] **FIG. 7** is a flow diagram illustrating service records created and maintained by the system of the present invention and the updating thereof;

[0016] **FIG. 8** is a flow diagram pertaining to the sending of service alert messages;

[0017] **FIG. 8A** is a flow diagram pertaining to accessing an interface for obtaining service information and reports through the present invention;

[0018] **FIG. 9** is a menu screen of information and reports that are available through the present invention;

[0019] **FIG. 10** is an example of a service alert;

[0020] **FIG. 11** is a query screen for obtaining purchase history information of fitness equipment units;

[0021] **FIG. 12** is a report screen corresponding to the query screen of **FIG. 11**;

[0022] **FIG. 13** is a query screen to obtain current service status of fitness equipment units;

[0023] **FIG. 14** is a report screen corresponding to the query screen of **FIG. 13**;

[0024] **FIG. 15** is a query screen to obtain service and preventative maintenance records for fitness equipment units;

[0025] **FIG. 16** is a report screen corresponding to the query screen of **FIG. 15**;

[0026] **FIG. 17** is a query screen for obtaining information pertaining to the usage of fitness equipment units during a particular day or days;

[0027] **FIGS. 18 and 19** are report screens corresponding to the query screen of **FIG. 17**;

[0028] **FIG. 20** is a query screen to obtain information concerning the popularity of fitness equipment units based on usage levels of customers;

[0029] **FIG. 21** is a report screen corresponding to the query screen of **FIG. 20**;

[0030] **FIG. 22** is a query screen to obtain information concerning preventative maintenance tracking of fitness equipment units;

[0031] **FIG. 23** is a report screen corresponding to the query screen of **FIG. 22**;

[0032] **FIG. 24** is a query screen pertaining to summaries of usage of fitness equipment units by manufacturer, type of equipment, location, etc.;

[0033] **FIG. 25** is a report screen corresponding to the query screen of **FIG. 24**;

[0034] **FIG. 26** is a query screen to obtain special report summary information;

[0035] **FIG. 27** is a screen for obtaining troubleshooting service information on fitness equipment units;

[0036] **FIG. 28** is a report screen providing a service status of fitness equipment unit groupings;

[0037] **FIG. 29** is a report screen particular to an individual fitness equipment unit shown in **FIG. 28**;

[0038] **FIG. 30** is a report screen showing the service history of a particular fitness equipment unit shown in **FIG. 28**;

[0039] **FIG. 31** is a preventative maintenance report for a selected grouping of fitness equipment units;

[0040] **FIG. 32** is a summary report for the current usage of fitness equipment units of a desired grouping;

[0041] **FIG. 33** is a report screen showing detailed usage information on a particular fitness equipment unit from **FIG. 32**;

[0042] **FIG. 34** provides a history of the usage of a particular fitness equipment unit selected from **FIG. 32**;

[0043] **FIG. 35** is a report screen showing trends of usage of fitness equipment over time by selected criteria including equipment type, equipment at a particular location, etc.;

[0044] **FIG. 36** is a menu screen of information and reports available to the present invention;

[0045] **FIG. 37** is a first screen of six utilized for selecting the parameters for an installation and warranty tracking report;

[0046] **FIG. 38** is the second screen of the query;

[0047] **FIG. 39** is the third screen of the query;

[0048] **FIG. 40** is the fourth screen of the query;

[0049] **FIG. 41** is the fifth screen of the query;

[0050] **FIG. 42** is the sixth screen of the query;

[0051] **FIG. 43** is a report screen providing installation and warranty information; and

[0052] **FIG. 44** is a service request screen.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0053] The present invention is a service tracking and alerting system **18** for FEUs located at fitness facilities. These fitness facilities can be commercial fitness clubs and gyms, exercise facilities at schools and universities, resorts, hotels, social clubs or companies, as well as all other locations where FEUs are used. The present invention has a number of unique aspects that may be used in combination or alone. Therefore, while the text and depictions below describe and illustrate one system having all aspects, it is to be kept in mind that portions of the system **18** may be used separately.

[0054] Referring initially to **FIGS. 1-4**, in general, the system **18** of the present invention includes using one or more ICSs **20** to collect real time service information from FEUs, for example, exercise cycle **22** and elliptical trainer **24**, located at a particular fitness facility. Each ICS stores this information in a temporary database **25**. Periodically, the information is transmitted to an accumulated data storage unit or data silo **26** via a communications/date transmissions network **29**. The accumulated data storage unit may include a permanent database **27** having a cache **28** of history service information. Upon receipt of service information from a ICS, the accumulated data storage unit incorporates the newly-received service information into the permanent database **27**. The ICS then continues a new round of collecting real time service information from the FEUs. Although only one silo **26** is shown in the figures, it is to be understood that multiple silos with their corresponding ICSs can be utilized. The multi-silo arrangement may be accessed and controlled using an enterprise level platform **32**.

[0055] The system **18** of the present invention is further capable of providing service alert messages to one or more users if the state of a particular FEU should warrant. The service alert message may be generated by the ICS **20**, the accumulated data storage unit **26**, and/or the enterprise level platform **32** depending on the criteria set for sending it. The service alert message is preferably sent via a data/communications network **29** which may be in the form of email, instant message, a voice mail message, text message via cellular phone, walkie-talkie, a pager, etc.

[0056] In more detail and referring to **FIGS. 1-3**, each ICS **20** is associated with a fitness facility. The term "ICS" as used herein is defined as a system **20** that includes a computer **30** having a CPU **31** memory (RAM **32** and ROM **33**) for collecting service information from an FEU via a wireless communication link, storing the collected service information in an electronic data memory unit **34**, and providing access to the collected service information. Such computers are now commonplace and thus will not be described with any detail here. One example of an ICS suitable for the present invention is the Envenergy Mediator. The system's memory unit **34** can be in the form of a removable/non-removable, volatile/non-volatile storage media. Non-limiting examples include a hard disk drive, a solid state flash disk, a magnetic drive, a tape drive, an optical disk drive, or other optical media. Removable storage media could include zip disks, flash cards, USB drives, magnetic or digital tapes, and the like. In addition to storing the collected storage information/data, the memory unit **34** is also used to store program modules, such as an operating system and application programs. Computer **30** runs programs capable of accomplishing the functions of the ICS.

[0057] In one embodiment of the present invention, the ICS may run operating system software **36**, such as an object based operating system. Non-limiting examples of applicable operating systems include Microsoft Windows™ or Linux™. For applications software, the ICS may run a database engine **38** to manage and search the data in the database of the ICS. One such search engine is sold under the name Filemaker™. A plugin **40** may be used in the database engine to allow the database records to be accessed from an Internet browser. Web Companion™ is one such plugin. The applications software may also include software **42** to enable the database software to read from and write to serial ports of the ICS computer. One such software for this purpose is Trio™. Of course, other data ports of the ICS may be utilized for data input and output other than the serial port. The applications software may also include plugin **44** to enable the database software to send emails. One such software is SMTPit™. If service alert messages are sent other than via email, then other appropriate software can be utilized with the chosen database engine. In addition, the application software may include a component **46** to schedule scripts. One such plugin is sold under the trademark Events™. Of course, some of the foregoing applications' functions may be integrated together rather than constituting individual plugins for the database management software **38**.

[0058] Also, other application software may be utilized with the ICS **20**, other than those described above, to perform those functions described above and other functions required of the ICS pursuant to the present invention. In this regard, the ICS may utilize software that is part of the enterprise level software. One such integrated software is Envenergy Mediator. This particular software has many of the functions of the foregoing plugins already integrated therein. Also, with this software, significant records are not maintained on the ICS; rather, the data collected by the ICS is periodically transferred to the silo **26** and thereafter the data in the ICS is purged.

[0059] Alternatively, the ICS could be software applications that are loadable onto an existing personal computer or other computer and capable of accomplishing these functions. In one embodiment, the ICS is a dedicated computer residing at the facility of the FEUs and including a centralized memory **34** for storing collected service information.

[0060] By being "associated" with a fitness facility, the ICS may be located at the facility itself, or it may be located off-site from the facility. This may depend in part on the communication link used between the FEUs and the ICS. Also, depending on the number of ICSs at a particular facility, it may be necessary to utilize more than one ICS at a facility or club.

[0061] The ICS includes the ability to poll the FEUs at their facility, either sequentially or simultaneously, and to make such information accessible to one or more users. By way of background, current FEUs may have the ability to internally track various types of service information and data, for example, e.g., odometer reading, current status, error history, etc. Such machines typically include a two-way communications port following the "Communication Protocols and Standards for Exercise Equipment", or CSAFE port, for short. The CSAFE port is an industry standard that is shaped somewhat similarly to a telephone jack. In one embodiment of the present invention, each FEU includes an radio frequency transceiver connected to the CSAFE port and also to a transceiver **48** connected to a communications port of the ICS. An example of such a transceiver is the AeroComm RF transceiver model No. AC5124C, manufactured by AeroComm, Lenexa, Kans., USA. Alternatively, other wireless protocols or even a power line transceiver may be used in lieu of the RF-based transceivers.

[0062] As shown primarily in **FIGS. 5 and 6**, the present invention may be utilized in conjunction with an FEU in the form of an exercise cycle **22** having a frame **60**, a seat **62** mounted on the upper end of a seat post **64**. The frame also includes a forward post **66** for supporting handlebars **68** and control/display panel **70** at the upper end of the post **64**. The exercise cycle **22** also includes pedals **72** mounted on the outer ends of cranks **74** coupled to a crankshaft **76**. A drive sheave **78** is splined, keyed, or otherwise coupled to the crankshaft **76** and trained to a drive sheave **79** splined or keyed to a drive shaft **80** by belt **82**. A flywheel **84** is also coupled to the drive shaft **80**. Resistance to the rotation of the flywheel **84** may be applied by an eddy current brake or other type of brake, not shown. Sensors, such as sensor **86**, as well as other sensors, may be utilized to measure numerous operational parameters of the exercise cycle **22**, including the speed of rotation of the flywheel **84**, the number of revolutions of the flywheel **84** or crank **74**, the resistance load imposed on the flywheel by the braking system, the length of time of a current workout. As shown in **FIG. 5**, the exercise cycle **22** also includes a radio frequency transceiver **88** connected to a CSAFE port **90**.

[0063] The present invention may also be utilized in conjunction with other types of exercise equipment, for instance an elliptical trainer **24** as illustrated in **FIG. 6**. This apparatus includes a floor mounted frame **100** on which is mounted an elevatable front ramp **102** for supporting the forward ends of foot links **104** through rollers **106** axled to the front end of the foot links. The rear end of the foot links **82** are coupled to the outer ends of crank arms **108** sending outwardly from a crank shaft **110** journaled in an upright support structure **112**. A flywheel **114** is keyed, splined or otherwise coupled to the crank shaft **92**. Foot support plates **116** are mounted on the upper side of the foot links **104** for supporting the user's feet. A forward post structure **118** extends upwardly and forwardly from the frame **100** to support at its upper end a handlebar assembly **120** and a display/control panel **122**.

[0064] Sensors **124** and **126** sense, among other operating parameters, the angle of the ramp **102**, the rotational speed of the flywheel **114**, the resistance being applied to a flywheel by a braking system, not shown, the number of revolutions of the flywheel, the time duration of the exercise session, as well as other parameters. As in the cycle **22**, the elliptical trainer **24** also includes a radio frequency transceiver **128** that is wired to or otherwise connected to a CSAFE port **130**.

[0065] According to the present invention, in one embodiment, ICS **20** is used to sequentially poll each FEU regarding one of a multitude of service information data types. See **FIG. 7**. The ICS may include a master transceiver **48** (e.g., using an AeroComm radio) that sends a query including an FEU identification number. Each FEU receives the query from the master transceiver, determines whether it is the FEU of interest, and responds with the answer if so, see **FIG. 7**. In another embodiment, software is used on an existing computer to simultaneously poll multiple FEUs at a fitness facility via radio frequency transmissions.

[0066] Each ICS has driver software to enable the ICS to communicate with the radio frequency transceiver, as well as driver software to receive the CSAFE format data from the FEU and convert such data to a desired format for storing in the ICS, and/or transmitting onto the silo **26** and/or enterprise platform **32**.

[0067] The database **34** has one service information record **140** for each FEU for each time polled, see **FIG. 3**. Each such record **140** can include such information as:

[0068] a communication address used by the ICS to communicate with a specific FEU;

[0069] a FEU identification number as assigned by FEU owner;

[0070] manufacturer Model name/number and serial number of the FEU;

[0071] text that uniquely describes the FEU;

[0072] current state of the FEU, including:

[0073] "ready"—when FEU is idle;

[0074] "on-line"—FEU is in use, typically by a user, but perhaps by a service or maintenance person running the FEU's diagnostics;

[0075] "error"—FEU has detected a hardware error and thus has made itself unavailable for use;

[0076] "no response" to last poll (a true or false value);

[0077] time since the last response;

[0078] software version;

[0079] current odometer reading;

[0080] current hour meter reading;

[0081] current speed (for example, pedaling speed, flywheel speed, or treadmill belt speed);

[0082] sum for average speed;

[0083] maximum speed;

[0084] current incline of treadmill, elliptical cross-trainer or other applicable FEU;

[0085] sum for average incline;

[0086] maximum incline;

[0087] current resistance level;

[0088] sum for average resistance;

[0089] maximum resistance;

[0090] current user power;

[0091] sum for average user power;

[0092] maximum user power;

[0093] count for all of the foregoing averages;

[0094] current user heart rate;

[0095] current or last used course;

[0096] current or last user weight and age;

[0097] current or last user workout time, distance, and calories expended; and

[0098] current or last user average and maximum heart rates, and time spent in the heart rate zone.

[0099] A new record **140** is created each time an FEU changes state.

[0100] The ICS **20** may maintain a history database **141** showing the usage of the FEUs being monitored, see **FIG. 3**. For each FEU, the history database **141** contains one record **142**, each of which may contain the following information:

[0101] communications address;

[0102] FEU identification number as assigned by FEU owner;

[0103] manufacturer's Model number/name, and manufacturer's serial number for unit;

[0104] text that uniquely describes the FEU;

[0105] the event which changed the state of the FEU, i.e., "ready" to "off-line", "off-line" to "ready", "off-line" to "error", etc.;

[0106] date and time;

[0107] odometer reading;

[0108] hour meter reading;

[0109] average and maximum speed, for example pedaling speed or treadmill belt speed or flywheel rotational speed;

[0110] average and maximum incline (if applicable);

[0111] average and maximum resistance (if applicable);

[0112] average and maximum user power;

[0113] course;

[0114] weight and age of user;

[0115] workout time, distance traveled and calories expended;

[0116] average and maximum heart rate of exerciser, and time spent in the heart rate zone; and

[0117] error code.

[0118] When the ICS **20** detects a state change from "ready" to "off-line" (for example, in use), the history database for the FEU is updated with a new record **142** containing the data entries listed above, see **FIG. 7**. Also, when a unit is in the "off-line" state, the ICS updates all the fields for the current record **140** for that particular FEU in the FEU's current record database.

[0119] The ICS **20** may also include an errors database **143** containing information on the current and previous errors for all of the FEUs at a particular location, see **FIG. 3**. The information in this dataset may include the FEU's communications address, the FEU I.D. number, the manufacturer's name, model and serial number, the error code, the error code text, the date and time of record creation, the date and time of the most recent occurrence of this error code, the number of occurrences counter, whether or not an error code was sent, and if so, the time and date of sending, the time and date of the error code acknowledgement, whether or not service has been performed for this error code, and the time and date of the service activity.

[0120] Referring to **FIGS. 1 and 4**, each ICS **20** is in communication (e.g., TCP/IP protocol connections) with the accumulated data storage unit **26** and optionally with other club computers, for example, a computer **144**, see **FIG. 1**. The ICS **20** may be linked to the on-site club computer **144** via direct connection or local area network rather than through the network **29**. In one embodiment, the accumulated data storage unit **26** is a Web-based server **146** connected to the Internet or other network **29** and having a large data storage unit that may be in the form of a hard drive **144**, a tape drive **150**, an optical drive **152**, a removable memory medium **154**, a solid state flash disk, or other type of memory device. The server **146** also includes a computing system **156** to operate the data storage unit. The computing system **156** includes a CPU **158**, RAM memory **160**, ROM memory **162**, and other standard components that are utilized in servers, such as server **146**. The server may also include an associated monitor **164**, as well as input devices, such as a keyboard, pointing device, track balls, microphones, touch screens, joy sticks, and the like, not shown. Typically these input devices are connected to the computing system **156** by a serial port, a parallel port, USB port, fire wire port, SCCSI port, or the like.

[0121] The server **146** is operated under operating system and applications software, as would typically be the case. The operating system software **166** may be an object-based software or other type of software. As with the case of ICS **20**, the server **146** may operate various types of application software, including a database engine **168** to organize and control the database **27** and also to obtain information from and organize information in the database when so instructed by the user, as discussed more fully below. To this end, the server **146** may also include an Internet browser access software **170**, software to read from and write to the computer **172**, software **174** to send e-mails or other types of communications from the server, and software **176** to schedule scripts. As with the ICSs, the software of the server **146** may be part of the overall enterprise level software, and thus integrated with the enterprise platform.

[0122] The present invention contemplates that system **18** would consist of a number of silos **26** with corresponding ICSs **20**. These multiple silo systems are managed by the enterprise level platform **32**, **FIG. 1**. This platform may communicate with the silos **26** as well as with the ICSs **20** and system users via network **29**, which may be a wide area network, i.e., the Internet, a local area network, dial-up system, etc. The enterprise platform **32** may include its own hardware and software. One example of enterprise level software may include Envenergy Mediator. Numerous types of server hardware could be used for the enterprise platform.

[0123] As noted above, each ICS **20** periodically sends the contents of its temporary database **25** to the accumulated data storage unit **26** for permanent storage in permanent database **27**. The connection between the ICS and the accumulated data storage unit **26** is via the network **29** which may be "a connection via the Internet", which could be wireless (i.e. 802.11), or by network cable, dial-up modem, satellite, etc. This allows the ICS **20** to reuse its memory for storing more new real time service information from FEUs. To this end, the server **146** includes a communications unit **180** as well as applicable hardware and software, to enable the server to communicate over the network **29** with the ICSs, also with users, as discussed more fully below.

[0124] In addition, the service information stored in the accumulated data storage unit **26** has a multitude of uses, many of which are described in detail below. The transfer of real time service information to the accumulated data storage **26** unit can be done on predefined time basis, or when a certain criteria is met (such as the ICS memory is close to being full), or according to whatever other basis is desired.

[0125] The service information collected by the ICS **20** and the accumulated data storage unit **26** preferably includes service information from all types of FEUs of a particular club or facility, including those FEUs from different manufacturers. As discussed below, the present invention can provide the club owner with a great amount of useful information. Further, it is possible to form a single accumulated data storage unit that is industry wide. Thus, ICSs from different fitness clubs could transmit service information to a single accumulated data storage unit. All manufacturers could have access to the accumulated data storage unit and would be required to use a unique access method in order to gain access to data on the FEUs that they manufactured.

[0126] The ICS **20** and accumulated data storage unit **26** each store some information that is the same, and may also

store information that is unique to one or the other. For example, the ICS system memory **34** may also store associated notes regarding a particular event, e.g., patron comments, the manager on duty at the time of an event, use counters to alert management of the need for more machines, as well as other specific information **182**, etc. By way of another example, the accumulated data storage database **27** may also store facility locations, manager phone numbers, time in existence, and other specific information **184**, etc.

[**0127**] In one embodiment of the present invention, the permanent database **27** contain, for each FEU, one record **186** per event. Types of information may include those listed above concerning the information stored in the harvesting memory **34**, for example: FEU identification number, state, date and time, odometer value, hour meter value, speeds, incline, resistance, power use, course, workout performance, error code, etc.

[**0128**] In accordance with further aspects of this invention and referring to **FIG. 8**, the system is further capable of providing a service alert message to one or more users if the state of a particular FEU should warrant. Typical FEU states are:

[**0129**] "ready"—this means that the FEU is idle;

[**0130**] "off-line"—this means that the FEU is in use, either by a user or being serviced by service or maintenance personnel;

[**0131**] "idle";

[**0132**] "active";

[**0133**] "no response"—meaning the FEU does not respond to polling by the ICS. The lack of a response by the FEU may be due to one of three possibilities:

[**0134**] the FEU is self-powered and is currently not being used;

[**0135**] the FEU (and its wireless transmitter) has been moved out of range of the ICS's radio;

[**0136**] the communication channel between the ICS and FEU is disabled, possibly intermittently;

[**0137**] "error"—this means that the FEU has detected a hardware error and thus has made itself unavailable for use.

[**0138**] The ICS **20** captures the service information and makes a determination as to whether a service alert message is needed, see **FIG. 8**. The criteria used may be permanently predefined, or may be modifiable according to the needs of the facility. For example, one facility may decide that service information pertaining to power-off do not warrant a service alert message.

[**0139**] The service alert message may be generated by the ICS **20**, by the accumulated data storage unit **26**, and/or by the enterprise platform **32**, depending on the criteria set for sending the message, see **FIG. 8**. For example, if an FEU experiences a burned out motor, the ICS may send: (1) a service alert message to the facility manager apprising him or her of the situation, (2) a service alert message to a repair facility requesting a new motor, and (3) a service alert message to the accumulated data storage unit **26** which then determines if a trend exists and, if so, sends a service alert message to the manufacturer regarding a potential design defect in their motors and another service alert message to the repair facility with history service data.

[**0140**] As an alternative to the foregoing procedure, the ICS **20** may send an error code to the enterprise platform, and the service alert is then generated by the enterprise platform based on the rules and criteria that have been established. In this alternative, the data storage unit **26** also would not itself send service alerts or messages to manufacturers or others; rather, such alerts and messages would also be sent by the enterprise platform.

[**0141**] In one embodiment, a service alert message is generated only for an error status. The message may include a complete solution to the error including identification of which unit has failed, error type, other relevant data from the equipment (e.g., odometer reading), and (low priority) technical support information with step-by-step instruction on how to correct and suggested parts needed. In addition, service alert messages may be generated and sent to club managers when preventive maintenance is needed.

[**0142**] As will be appreciated by a reading of the above, there are numerous configurations possible regarding service alert messages. Particularly desirable aspects include the use of a wireless communication of the service alert message (e.g., email, SMTP/IP, voice mail, pager, text message, satellite communication, cellular connection, etc.), the ability to send the alert message to one or more recipients, and the ability for the message to be sent automatically and in electronic form. **FIG. 10** illustrates one embodiment of an example service alert message.

[**0143**] In accordance with yet other aspects of this invention and initially referring to **FIGS. 1 and 4**, the system **18** further includes a reporting interface **190** accessed via the enterprise platform **32**. The interface **190** allows a user to view both real time and history service information of FEUs by accessing the accumulated data storage unit **26** and/or one or more ICSs **20**. In reporting interface aspect, the ability to query multiple aspects simultaneously and the ability to manage the information is accomplished at different levels.

[**0144**] In one embodiment, log-on access to the interface **190** is provided by a Web-based (preferably, access-controlled) system linking the user via the enterprise platform to an accumulated data storage unit **26**. Real time data may be obtained from a ICS **20** through network **29** (e.g., Internet, intranet), accessed by direct dial-up account, cellular phone line, cable modem, satellite modem, etc. Alternatively, in systems having ICSs that continuously send their real time data to the accumulated data storage unit **26**, the secondary link to the ICS(s) may be unnecessary.

[**0145**] In one embodiment, the user can request and review service information data only and cannot make any changes, see **FIG. 8A**. In another embodiment, one or more users with a higher access level have the ability to modify the data presented. For example, a repair shop may have the authority to update the status of a particular problem from "In-Work" to "Completed". Similarly, a manufacturer may have the authority to designate a particular problem as having an associated recall issue. A multitude of configurations are possible.

[**0146**] In general, the user obtains information from the reporting interface by selecting one of a number of different

topics as described below with respect to **FIG. 19**. In one embodiment, multiple buckets or types of information are selectably displayed on a first menu screen **202**. A menu system leads the user through various levels of inquiry, with the final step preferably being the selection of a report or search button. In general, the amount and type of service information available will depend on the amount and type of service information coming from a particular FEU. In addition, the user can request service information for a particular location, a particular region, a particular club, a particular customer, a particular type of machine, etc.

[**0147**] The interface includes multiple pages of information, with numerous opportunities for the user to select the desired information and put it in a desired format. **FIGS. 9-35** illustrate one embodiment of such an interface. Other arrangements are possible. The results of the information request can be displayed on the user's computer screen, on the user's PDA or other device. In one embodiment, the listing of FEU current status is done in a color-coded manner, with a red light, green light, etc., shown beside each entry, see, for example, **FIGS. 12, 14, 23, 28, 31** and **32** and the associated discussion below. The color may indicate the status of a particular service alert associated with a particular FEU. The graphic reports and charts may be similarly color coded as well. As will be appreciated, the service information may be presented in various ways, depending on the application at hand.

[**0148**] Describing the reporting interface **190** in more detail, **FIG. 9** illustrates one exemplary embodiment of the first menu screen **202** of the reporting interface **190** in the menu screen **200**. The following informational categories may be selected: Service Alerts **204**, Purchase History **206**, Real-Time Status **208**, Service History **210**, Peak Times **212**, Product Popularity Usage **214**, Preventative Maintenance Tracking **216**, Unit Work History Summaries **218**, Special Reports **220**, Trouble Shooting Service Issues **222**, Automatic Parts Inventory **224**. Any of the foregoing informational categories can be selected by the user by selecting the "View Report" button or box **226** adjacent each of the foregoing categories.

[**0149**] If the Service Alert category **204** is selected, as discussed above, the present invention generates a service alert message **229** to applicable recipients when an FEU is in need of service. The recipients may include the club/facility manager or other responsible personnel **192**, a service provider or technician **194**, customer support personnel of the FEU's manufacturer **196**, as well as the system administrator **198**. **FIG. 10** is an example of a service notice that would be generated by the present invention. As shown in **FIG. 10**, the notice includes various information including the facility **230**, at which the FEU is located, as well as main recipients **236** (e.g., service provider **194**) of the service alert **232**, as well as cc recipients **234** (e.g., the club manager **194** and FEU manufacturer **196**). The service report also indicates the time and date **236** that the report was received by the recipient(s) as well as the subject **238** of the service alert. Thereafter, the service alert reporting information **239** is set forth, including the location of the FEU in question, the date in which the "error code" occurred for the FEU, the time in which the error code occurred, the manufacturer and Model number of the FEU in question, the serial number of the FEU in question, the error code applicable to the FEU, and an error description. In the example of the service alert message **229** shown in **FIG. 10**, the described error is that the lift is not operating. The service alert also advises the recipient that the service history of the FEU in question, as well as preventative maintenance record and other information, is available. In the example shown in **FIG. 10**, the fictitious name of the entity operating the service alert system **18** of the present invention has been named "Service Tracker." Also, the Service Alert message **229** can provide other or additional information to some or all of the recipients. Examples include recommended parts needed or procedures to follow to repair the FEU or otherwise perform the required service on the FEU.

[**0150**] As described above, a service alert may be automatically generated by a change in state of the FEU when a service matter arises. As also noted above, a service alert can be sent via a network **29** using numerous different types of communication access modes. The service alerts of the present invention can decrease the down time of the FEU by facilitating quick, unobtrusive service by relaying pertinent information to the service provider before he/she arrives at the site of the FEU. This can not only result in cost savings to the club/facility owner/operator, but can also decrease the negative impression for customers/members of the club/facility.

[**0151**] A second inquiry that a user can select from the menu screen **202** of the reporting interface **190** is the Purchase History category **206** which leads one to a purchase history query interface screen **240**. This screen may be utilized to create reports showing the installation date, usage, and service history of FEUs. This information is of significant use to club/facility owners and operators, for instance when deciding to replace units. The query can select multiple parameters, including the manufacturer **242** of the FEUs, and the type **244** of FEU, whether treadmill, exercise cycle, climber, elliptical machine, or other type. The query can also be based on a particular facility location or a region of the country **246**. Further selectable parameters include the hour usage **248** of the FEU or the mileage **250** on the FEU's odometer. The installation date **252** of the FEU is also a selectable parameter as well as the warranty expiration date **254** of the FEU or portion or components of the FEU. At the purchase history interface screen **240**, it is also possible to select primary and secondary sort criteria (not shown), for instance by manufacturer, product type, installation dates, etc., at the primary sort submenu **256**.

[**0152**] An example of a resulting report screen **258** based on the parameters selected in the query screen **240** is shown in **FIG. 12**. In the purchase history report **258**, the information is provided in columnar form, although other formats may be selected. The columns in the report **258** include the date of installation of the FEU **260**, the warranty expiration date of the FEU **262**, the name of the manufacturer of the FEU **264**, the Model and equipment type of the FEU **266**, the location of the FEU **268**, the hour meter reading of the FEU **270**, the distance odometer reading of the FEU **272**, and a view service report option icon **274**. The primary sort category used in the report **258** was the date of installation. Of course, if another primary sort criteria is selected, the information shown in **FIG. 12** would be arranged differently. Also, in report **258** is a first column **276** consisting of colored balls or other icons for each FEU, which allows for the color-coding of the data presented in report **258**. For

example, a green, yellow, red, or other color code may be used to indicate the remaining useful life of the FEU or other criteria.

[0153] From column **274** of report **258**, the user can, for a specific FEU, obtain a service history report, which is described below relative to **FIGS. 15 and 16**.

[0154] A third category of information shown in **FIG. 9** that can be selected by the user is the Real-Time Status **208** of the FEU. Selection of this category leads the user to a query screen **300**, shown in **FIG. 13**, consisting of criteria that may be selected relative to the Real-Time Status report being requested which pertains to providing an understanding of the current service and usage status of any FEU at any location. As shown in **FIG. 13**, the report criteria that may be selected includes a particular club location or region of the country **302**, the manufacturer of the FEU **304**, and the product category of the FEU **306**. In addition, the report can be sorted by at least primary and secondary criteria **308** and **310**. Such criteria may include, for example, the manufacturer of the FEU, the category of the FEU, the installation date of the FEU, etc. Once the criteria for the query is selected, a report **312** is generated, as shown in **FIG. 14**.

[0155] The information in **FIG. 14** is arranged in columnar form with one line per FEU. As would be expected, the arrangement of such information is based on primary and secondary sort criteria selected in screen **300**. The columns of report **312** may include the following information: the manufacturer **314**, the FEU Model **316**, the FEU product category **318**, the manufacturer's serial number of the FEU **320**, the error status of the FEU **322**, and the date that a service alert was sent **324**. The last column of report **312** shows an icon **325** to allow the user to select the service history for a particular FEU. Also, in the first column **328** a color-coded icon **329** may be utilized to provide a color representation of the current status of the FEU. For example, colors may be used to represent whether or not an error status is currently in effect. Also, a print icon **236** is provided to allow the recipient to print the report. As would be expected, each of the query and report screens used with the invention can have a print icon for convenient printing of the screen being accessed.

[0156] Referring to **FIG. 9**, in the menu screen **202**, it is possible to select the Unit Service History option **210** of an FEU which leads the user to screen **340**, shown in **FIG. 15**. The screen **340** contains criteria for the desired report. Of course, other criteria could be used in this query screen as well as the other query screens described herein. In screen **340**, the user enters the serial number of the FEU **342** and the time period of the desired report. When these selections are made, the report can be generated in the format shown in screen **346**, **FIG. 16**. If the serial number of the FEU is unknown, means can be provided to obtain that information, such as by accessing the Real Time Status report query screen **300** via the link button/box **345** in screen **340**. The service history of the selected unit is displayed in screen **346**, **FIG. 16**.

[0157] In the upper portion of the report screen **346**, shown in **FIG. 16**, information concerning the selected FEU is set forth, including the total downtime of the unit **347**, manufacturer **348**, the product category **349**, Model or type of product **350** of the FEU, the serial number **352**, the date **354** that the FEU was installed, the location of the FEU **356**, the owner's I.D. number **358** of the FEU, the name of the person that services the FEU **358**, and the service account number **359**. The service record of the FEU is set forth in the lower part of the screen **346** in columnar form, with the columns including the date **360** and the time of the date **362** that the service record was generated, the applicable error code **364**, the service recommendation **366**, the description of the error/service performed **368**, the hour meter reading **370**, the odometer reading **372**, whether a service alert was sent **374**, the preventative maintenance ("PM") status **375**, when the receipt of the service error was acknowledged **376**, and by whom **377**. The screen **346** also includes a PM recommendation key **378** corresponding to the recommendations set forth in column **366**.

[0158] The service history report shown in screen **346** at the upper portion thereof identifies the query selections from **FIG. 15**, including the location **380**, the date range **381**, the manufacturer serial number **382**, the unit ID number **383**. In addition, the total hours **285** and the total odometer reading **386** are provided.

[0159] Further, in screen **346**, warranty expiration dates are provided for not only different portions of the FEU, but also for parts **387** and labor **388**. The portions of the FEU for which expiration dates are set forth include the frame **390**, the display unit **391**, the motor **392**, and the motor fan **393**. As apparent, a significant amount of information is provided in screen **346** concerning the service history of the particular unit FEU selected. Of course, the screen **346** need not provide all of the foregoing information if not required or desired by the user. Also, some of the foregoing information could be provided in other screens instead of the unit service history screen. This is true of all of the report screens illustrated and discussed herein.

[0160] It will be appreciated that the service history information enables the user to determine what maintenance has been performed in and out of warranty, and the cost of the maintenance that has been completed in and out of warranty. Also, this information helps the user make purchasing decisions in terms of replacing or buying new FEUs.

[0161] From the user interface menu screen **202**, the user can also select the Peak Times option **212** leading to query screen **400** which provides information concerning usage of FEUs during the hours of a day. The parameters that can be selected for this inquiry, as shown in screen **400**, include, for example, the sites or locations of the FEUs **402**, whether at all locations, in different regions of the country, or at specific locations. It is possible to select more than one of these locations for this particular inquiry or more than one of the other parameters available in this or other query screens described herein. Such other parameters include the time period **404** of the inquiry, the days of the week **406** of the inquiry, so that the report can be selected for a particular day of the week or days of the week. The selectable parameters also include product categories **408**, for example, treadmills, cycles, climbers, ellipticals, or all of the above, as well as manufacturers of the FEUs **410** and particular models **412** from such manufacturers.

[0162] The resulting report is provided in tabular and graphical format, for example, in report screen **413**, as shown in **FIG. 19**. The tabular information includes the locations selected for the inquiry **414** and the total pieces of equipment types **416** for a selected site. Below the tabular

information, a line or other type of graph **418** is provided that shows the usage during the hours of the day on a horizontal axis and the units in use in the vertical axis. From the upper portion of report screen **413** it is possible to select a graph for each of the particular locations shown in column **414**. In this regard, graph **426**, shown in **FIG. 19**, pertains to one particular site location **422** (Club X-303) with the total number of FEUs (treadmills) **424** located thereat. The usage of these FEUs is graphed over the hours of the day as shown in Graph **426**. Although the report depicted in **FIG. 19** pertains to treadmills at three specific club facility locations, many other, different parameters could have been selected. Moreover, different product groups could have been selected, for instance, one specific treadmill (FEU), all treadmills of a specific model, all treadmills from a particular manufacturer, all treadmills from all manufacturers, all cardio equipment at a particular site or group of sites, etc. This information allows the user to determine when during a day or week that a specific product or group of products are being used, as well as how often members/users are required to wait to use a specific product group. As apparent, this information is useful in making FEU purchase decisions.

[**0163**] From the interface menu screen **202**, another selection is Product Popularity or Usage **214**, which analyzes the percent of available hours that a selected product group has been used. As discussed above with respect to the Peak Time analysis, from the Product Popularity or Usage analysis, product groups can be defined as one or more products, for example one specific FEU, all FEUs of a particular model, all FEUs in a particular product category, for instance treadmills, all FEUs in a product category from a particular manufacturer, an FEU of a product category from all manufacturers, all cardio FEUs at a particular site or group of sites, etc. As shown in query screen **440** of **FIG. 20**, the selectable parameters for this analysis can include FEU manufacturers **442**, product categories **444**, FEU Models **446**, the locations or regions in which the FEUs are located **448**, the day(s) of the week for the analysis **450**, and the duration of the analysis **452**. The result of the analysis is set forth in **FIG. 21** in both tabular and graphical format.

[**0164**] As illustrated in the upper screen **454**, the analysis illustrated in **FIG. 21** pertains to usage of treadmills at a particular location "Club X-302" during a specific time period. In the upper portion **454** of **FIG. 21** the treadmills are grouped by manufacturer **456** and then subgrouped by Model **458**. The information provided also includes the total equipment units **460**, the total hours of usage **462**, the total available hours **464**, and the percentage of total hours used **466**. Also, a bar graph illustrates the average number of hours that a particular product group was used per day.

[**0165**] The lower portion **470** of **FIG. 21** provides information on a specific FEU basis. The information that is provided in tabular form includes the manufacturer **472**, the model **474**, the hour meter reading **476**, the odometer reading **478**, the serial number of the FEU **480**, and the product description **482**. A bar graph **484** graphically illustrates the miles accrued for a particular FEU at a particular location through a specified time period. The graph can be of another parameter of the specific FEU, for example, hour meter reading.

[**0166**] Of course, the tabular and graphical information provided in **FIG. 21** would depend on the product groups selected for analysis. For example, the present analysis could be carried out on the basis of product categories for all manufacturers at the location(s) selected or by product category for each different manufacturer at the location(s) selected. Also, it can be appreciated that the foregoing information provided would be important in making purchasing decisions by the club/facility owner/manager. This information would also be valuable to equipment makers in showing how their equipment is viewed by actual users vis-à-vis comparable equipment by the manufacturers.

[**0167**] Preventative Maintenance (PM) tracking **216** is another possible selection from the interface menu **202** shown in **FIG. 9**. When this option is selected, the user is led to query screen **490** shown in **FIG. 22**. As in many of the other reports, the PM tracking report can be organized by product groups. To this end, the query screen criteria includes the site of geographic region for the report **492**, the product category **494**, a primary sort option **496**, for example, product category, manufacturer, installation date of the FEU, as well as a secondary sort criteria **498**. A further selectable criteria is whether the preventative maintenance suggestion has been signed off by the responsible personnel **500**.

[**0168**] The report results are tabulated in screen **501**, shown in **FIG. 23**, in matrix format. The columns of information, include the manufacturer **502**, the equipment type **503**, the Model number/designation **504**, the owner I.D. number or designation **505**, the serial number of the FEU **506**, the installation date **507** of the FEU, the hour meter reading **508**, the mileage or stride number reading **509**, the recommended PM to be carried out **510**, and an icon **511** to view the service report for the FEU. Also provided is a first column of colored indicia **512**, with the colors selected to indicate the urgency of the preventative maintenance or whether or not the preventative maintenance has been carried out. Screen **501** also includes a key **524** for the PM column **510**.

[**0169**] It will be appreciated that the information provided in **FIG. 23** can make the carrying out of preventative maintenance operations more efficient by saving time and costs while improving the accuracy and compliance of the preventative maintenance. This information also provides a fast and efficient manner of collecting hour meter and odometer readings on FEUs.

[**0170**] From the menu screen **202** of the report interface, the Unit Workout History **218** may be selected by the user. These summaries provide how products or product groups are utilized in the clubs and gyms, for example the workout courses used, lengths of the workouts, the speeds and resistance levels that are being used. This information can be helpful to the club/facility owner/manager as well as manufacturers to determine how better to offer training, instruction, and appropriate equipment to members/customers. When the Unit Workout History option **218** is selected, the user is led to a query screen **513**, shown in **FIG. 24**, which may be similar to the query screen in many of the other reports/options described herein. The information sought can be categorized by product group. To this end, screen **513** may include the following selectable criteria: manufacturers of the FEUs **514**, product category **515**, club location or region **516**, query dates **518**, and/or primary sort options **520**. Of course, a secondary sort option could also be provided, not shown.

[0171] The information for the Unit Workout History report may be provided in graphical and/or tabular format, shown in **FIG. 25**, which illustrates information pertaining to usage of a particular treadmill at Club X-101. The graphical information includes a first bar graph **522** showing the number of workouts of particular durations. As shown in the graph, most of the workouts are from 11 to 20 minutes. A second bar graph **524** shows which of the treadmill workout courses were selected most often. As shown in the graph, the manual course was most popular. The tabular information **526** provides specific information on the usage of a particular FEU. In this regard, the FEU is identified in box **525** in terms of the manufacturer, the model designation, the manufacturer's serial number, the S/W and the communications address. The usage information tabulated includes the location **528** and the Model type of the FEU **530**, the date of the workout **532**, the time that the workout started **534**, the course selected for the workout **536**, the calories expended by the exerciser **538**, the distance covered during the workout **540**, the maximum speed (in miles per hour) attained during the workout **542**, the maximum incline **544** of the treadmill during the workout, and the length of the workout **546**. As will be appreciated, this provides very valuable, detailed information to owners and managers of clubs and facilities, as well as to equipment manufacturers.

[0172] A further selection available from the menu screen **202** of the report interface of **FIG. 9** is a Special Reports feature **220**. When this selection is made, screen **560** appears as shown in **FIG. 26**. Such reports are for requests not fulfilled by existing report formats and if the user would prefer that Service Tracker™, the fictitious administrator of System **18**, create the report for the user. The user provides Service Tracker™ with a particular issue or question to be answered, an analysis to be formed, data to be gathered, etc. Thereafter, Service Tracker™ will carry out the request by the user and provide the report via tabular and/or graphical output. Example 1, designated as **562**, of a particular type of report may be an overall analysis of peak time usage of FEUs to recommend a better assortment of products to the user. Another possibility would be Example 2, designated as **564** consisting of an End of Fiscal Year Report showing usage (wear) on all products purchased in a particular year. Another possibility would be Example 3, designated as **566**, requesting an analysis to support a better distribution of current products and new products between or among specific locations. As will be appreciated, a very wide variety of special reports are possible through the Special Reports request.

[0173] Trouble Shooting Service Issues **222** comprise a further inquiry that can be made through the menu screen **202** of the report interface **190**. This selection helps a user obtain more information concerning a service alert. When a service alert is received, the user can select the Model type and the error code, and thereby receive a list of common trouble shooting ideas. The user can also see the parts required to repair the FEU so as to be able to order the parts more easily. To this end, the user is provided with views of the product and is given instructions from the manufacturer's user manual. For example, as shown in **FIG. 27**, a depiction of the FEU can be provided to the user. From the depiction, the user can choose a specific area of the FEU (for example, those areas that are circled in **FIG. 27**) to obtain not only more information, but also a diagram of the parts composing that portion of the FEU together with the applicable part numbers.

[0174] A further available selection from the menu screen **202** is the Automatic Parts Inventory **224**. In this option, when an error code indicates that replacement of a part is necessary, Service Tracker™ tells the manufacturer that a particular part is required. The manufacturer's internal system can automatically send or offer to send the part to the location predesignated by the customer, whether to a warehouse, a third party service provider warehouse, club location, etc. As will be apparent, this particular option can speed the repair of the affected FEU.

[0175] The user interface screen **202** also allows the user to obtain specific current status and maintenance reports for all FEUs owned by the user through the service menu **570**, as shown in **FIG. 9**. The service menu **570** has various selections, including an All Unit Service Status **572**, a Specific Unit Service Status **574**, and a Current Maintenance Report selection **576**.

[0176] When the All Units Service Status **572** is selected, a report is displayed for the service status of all units owned by the user, shown in screen **577** of **FIG. 28**. The information may be arranged in matrix format with the information provided in columns, including the Model designation of the FEU **578**, the type of FEU **580**, the FEU identification number as assigned by the owner **582**, the current service status of the FEU **584**, the current error status **586**, whether or not an error alert has been sent **588**, and the date and time of the last reply received from the FEU **590**. Also, in a first column **592**, color coded icons can be provided for a desired parameter to be displayed. For example, perhaps the color red can be displayed if the current error is shown in column **586**, perhaps green if the current status of the unit is active, and yellow if the current status of the unit is idle, and thus, ready for use.

[0177] Further information is provided in the screen **596** for a particular unit, see **FIG. 29**. Information on a particular unit can be obtained by simply selecting one of the product I.D. numbers **582** shown in **FIG. 28**. The further information as shown in screen **596** includes the Model designation of the FEU **598**, the type of FEU **600**, the owner I.D. number or designation of the FEU **602**, the S/W version 604 the manufacturer's serial number **606**, the communication address **608**, the last service report/alert date and time **610**, the odometer reading **612**, the hour meter reading **614**, and the current error code **616**. From screen **596**, it is possible to obtain the service history of the FEU throughout its entire life or during a particular time period, by selecting a start date **618** and an ending date **620** and then selecting the "View History" box **621**. Also, it is possible for the user to enter a description of a problem that is occurring with an FEU in textbox **622**.

[0178] The service history record of the FEU may be provided, as shown in screen **624**, **FIG. 30**. In the first or upper portion of the Service History record, identification information can be provided, including the Model designation **626**, the manufacturer's serial number **628**, the S/W **630**, the identification number of the FEU as provided by the owner **632**, and the communications address for the FEU **634**. This information should be the same as in screen **596**. Screen **624** also sets forth in tabular format the service

history of the selected FEU, including the date of service **636**, the time **638** of service on the particular date, the state of the unit at that time **640**, the hour meter reading **642**, the odometer reading **644**, the then current error codes **646**, and whether or not a service alert was sent **648**. As apparent, the foregoing provides a convenient way for the club/facility owner/manager to ascertain the current service status of all units owned as well as the service history of any particular FEU.

[**0179**] Through selection of the Unit Status Search **574** in menu **570**, the foregoing information can be obtained for a particular FEU owned by the user, by navigating through applicable selection options in a standard manner.

[**0180**] From menu **570**, the user can also obtain a current preventative maintenance report for any or all of the user's units at a particular location or at all locations and as of a particular date. Screen **660** sets forth a preventative maintenance report for all of the user's FEUs in tabular form, see **FIG. 31**. The information provided in each column includes the Model designation **662**, the type of FEU **664**, the identification number **666**, the manufacturer's serial number **668**, the installation date of the FEU **670**, the hour meter reading **672**, the miles/strides odometer reading **674**, the maintenance status **676**, and the date of the maintenance status **678**. Screen **660** also includes the location of the FEU **680** as well as the date of the report **682**. As will be appreciated, the foregoing provides a convenient manner in which the user can ascertain the preventative maintenance status of each of its FEUs. Moreover, the user can select a particular FEU to obtain its preventative maintenance history in much the same way that the service status history for a particular unit was described above and illustrated in **FIGS. 29 and 30**.

[**0181**] The interface screen **202** in **FIG. 9** also includes a menu **700** that allows a user to conveniently access usage information pertaining to its FEUs. Available options include Current Usage information **702**, Usage Trend information **704**, usage information, Usage Search, for a specific FEU **706**.

[**0182**] If the Current Usage option **702** is selected, the information about the current usage of the user's FEUs is provided in tabular format, for example see screen **712**, shown in **FIG. 32**. The columns of information provided include the manufacturer's Model designation of the FEU **714**, the type of FEU **716**, the identification number of the FEU **718**, the current usage status of the FEU **720**, the current speed of the FEU **722**, the current incline of the FEU **724**, the current resistance level of the FEU **726**, and the current course being utilized **728**. Also, as a first column **730**, a color designation can be provided to perhaps designate the usage status of the FEU with different colors for various status states.

[**0183**] It is possible to obtain the usage history of a particular FEU by selecting that particular FEU in **FIG. 32**, which leads the user to screen **734**, as shown in **FIG. 33**. This selection screen is similar to screen **596** shown in **FIG. 29**. In this regard, screen **738** includes much of the same information for a particular unit as set forth in screen **712**, including Model number **736**, equipment type **738**, the manufacturer's serial number **740**, the FEU identification number **742**, the S/W version 744, the hour meter reading **746**, the odometer reading **748**, the current status **750**, the current error code **752**, if any, the current speed of the unit **754**, the current incline **756**, and the current resistance level **758**. Also, in screen **734**, the user can select a particular time period for the usage history desired by entering dates in the start date box **770** and the end date box **772** and then selecting the "View History" box. If no dates are entered, the entire usage history is provided. Also, screen **734** includes a description box **774** wherein the user can enter a description about the FEU in question.

[**0184**] Completion of query screen **734** results in the generation of a report screen **780** which provides a usage history of the FEU for the time period selected. Identification information for the FEU is set forth at the top of screen **780**, including the manufacturer's Model designation **782**, the manufacturer's serial number of the FEU **784**, the S/W **786**, and the communications address for the FEU **788**. The historical information on the usage of the FEU includes the time **790** and the date **792** that each workout began as well as the course chosen for the workout **794**, the number of calories expended during the workout **796**, the workout distance in the number of strides or mileage covered **798**, and the duration of the workout **800**. As will be apparent, this information can be valuable in telling the user how a particular FEU is being utilized by customers.

[**0185**] If the Usage Trends option **704** is selected in menu **700**, graphical representations of equipment usage for a desired time period is presented for a desired product group, for example as shown in screen **900**, see **FIG. 35**. This screen shows three separate graphs, including a first graph **902** showing average usage hours per day by manufacturer's Model designation during the selected time period. The second graph **904** shows the average usage hours per day by type of FEU, for example treadmills and elliptical cross-trainers. Graph **906** shows selected equipment usage by time of day in terms of a percentage of the equipment being utilized in a club or gym during the selected date duration. This information can be very useful in assisting the user in making purchase decisions and other decisions pertaining to its FEUs.

[**0186**] Option **706** in menu **700** allows the user to obtain usage information for a particular FEU. This option can lead the user through menus similar to those described above to select a desired FEU, and then the information for that FEU is displayed in a manner identical or very similar to that shown in **FIGS. 33 and 34**, above.

[**0187**] As noted above, other interface systems, formats, and layouts can be utilized in the present invention in place of interface **190**. **FIGS. 36-43** illustrate portions of an alternative interface system utilizing an initial menu screen **1000** shown in **FIG. 36**. This menu screen has various report selections, including Usage Summary **1002**, Usage Summary by Model **1004**, Unit Workout History **1006**, Unit Service History **1008**, Installation and Warranty Tracking **1010**. Also, in screen **1000** it is possible to request Unit Service Alerts **1012**, Network Service Alerts **1014**, and it is possible to request Service for a particular FEU by selection **1016**. The foregoing selections available in screen **1000** are similar to corresponding screens illustrated and described above, perhaps with the exception of the installation and warranty tracking option **1010**, which option will now be described in more detail.

[**0188**] Selecting the Installation and Warranty Tracking option **1010** in **FIG. 36** leads to a series of query screens

shown in **FIGS. 37-42** to provide the user with a step-by-step intuitive query process. **FIG. 37** shows an initial screen **1020** which is used to select a location(s) to be queried. The location(s) could be all of the locations of a particular company or club those locations in a particular county, a region of a county, a state, a county of the state, a city, a section of a city, down to an individual location or even a floor, section, or area of a particular location. Access to specific locations will depend on authorization, for example, employees of Company A will not likely be given access to information pertaining to Company B, though information to all companies would be available to the enterprise administrator.

[**0189**] Once a location is chosen, the user is led to the next screen, screen **1022**, shown in **FIG. 38**. In this screen, the user selects the type or type(s) of equipment with respect to which the query is being made, as shown in menu **1024**. With each progressive screen, the information selected from prior screens is also provided in the right hand portion of the screen. For example, in screen **1022**, the location selected from screen **1020** is provided at **1026**. After selecting the product category, the user is led to screen **1030**, **FIG. 39**, wherein the user can select a particular model or models of the product type selected in screen **1022**. The user can select all models if desired from menu **1032**. Again, that criteria selected in prior screens is set forth in screen **1030**, as shown in location **1034**.

[**0190**] Next, the user is directed to screen **1040** shown in **FIG. 40**. In this screen, the user selects from menu **1042** the type or types of warranty being ascertained, for example a warranty on the frame, the unit display, the motor, controller, parts and/or labor. Again, the selections made in the prior screens are shown in the right hand side of screen **1040** at location **1044**. Next, the user is led to screen **1052**, shown in **FIG. 41**, which provides display options for the Installation and Warranty Tracking information. The information can be displayed based on the manufacturer's serial number **1054**, or the Unit Identifier used by the FEU owner **1056**. Also, an option **1058** is provided to limit the present inquiry to only warranties that have expired. Again, in the right hand portion of screen **1052** the prior selection criteria is set forth at location **1060**.

[**0191**] The last query screen **1070** is shown in **FIG. 42**. In this screen, the user may select a date range for the Installation and Warranty Information being requested. This date range may be a start date **1072** as well as an ending date **1074**. At any of the query screens, it is possible to go back to a prior screen by selecting the back button **1076** or to cancel the inquiry by selecting the cancel button **1078**. Also, the prior selection screens (**1020**, **1022**, **1030**, **1040**, **1042**) have a "next" button to go to the subsequent query screen. Since screen **1070** is the last query screen, this screen has a "Get Report" button to display the information based on the selections made in the query screens.

[**0192**] Screen **1080** shown in **FIG. 43** sets forth the resulting information based on the query criteria selected by the user. The information is provided in columnar format. Also, the criteria selected for the query is set forth in the upper portion of the screen. The columns of information include the Product Category **1082**, the Product Model(s) **1084**, the Location of the FEU **1086**, the Unit Identifier or ID number **1088**, the Installation Date of the unit **1090**, the hour meter reading **1092**, the odometer reading **1094**, and a service history view column **1096**, which if selected will provide the service history of the particular FEU. The displayed information also includes the warranty expiration dates **1098** for different components of the FEU which are covered by warranty, including the frame **1100**, the display **1102**, the motor **1104**, and motor fan **1106**. Also, for the various components covered by warranty, columns can be provided for separate warranty dates for replacement parts **1108** and labor **1110**. It will be appreciated that the warranty expiration for parts and/or labor may differ for different components of the FEU.

[**0193**] Typically, the foregoing installation and warranty information is retained in a data silo **26** as opposed to an ICS for security reasons. In a data silo, it is possible to limit the ability to enter, delete and/or change installation and warranty expiration data.

[**0194**] As noted above, service for a FEU can be requested from **FIG. 36**. **FIG. 44** illustrates an exemplary service request screen **1200** in which the user inserts particular information concerning the FEU, its location, and the requestor. This screen provides a space for typing in the symptom that the FEU is exhibiting. The service request is forwarded to a service provider, with the information concerning the service provider and the routing of the request to the service provider being enterable into screen **1200**.

[**0195**] In accordance with other features of the reporting interface aspect, the reporting interface includes the ability to request additional maintenance or action from one or more other recipients. This request is treated similar to a service alert message as discussed above, except it originates with the user in the reporting interface. This feature is useful to clear a record or to simply give feedback information from the user to the ICS or other party.

[**0196**] As will be appreciated from a reading of the above, the present invention provides numerous advantages over the prior art methods of service tracking and alerting. The use of multiple ICSs **20** to electronically and wirelessly obtain and store real time service information in a centralized manner is efficient and provides tremendous access to actual service data. The connection to an accumulated data storage unit **26** enables viewers to analyze FEU service issues over an extended period of time. The service alert messaging aspect shortens the time needed to identify, diagnose, and repair or service a particular FEU.

[**0197**] Further, the reporting interface feature automatically formulates service information and makes the information instantaneously available to the user, thus giving the user valuable insight into the operation and maintenance of the FEUs. This ability to view aggregated data between clubs and between products simultaneously and on a real time basis is unique in the fitness industry. Such service information may be used to level the usage of the FEUs, determine when an FEU should be replaced, make better future FEU purchases, help the facility managers to better know their customers, enable facility managers to provide better motivation or training to their customers, etc.

[**0198**] While a preferred embodiment of the invention has been illustrated and described, it will be appreciated that various changes can be made therein without departing from the spirit and scope of the invention. For example, if only

one data silo is used, it can be essentially integrated into the enterprise platform. Also, rather than retaining any significant amount of data or records in the ICS, the data received by the ICS from the FEUs can be sent immediately to the data silo **26** or to enterprise platform **32**, or can be sent periodically and then the data purged from the ICS. In this regard, the ICS does not have to be configured to manipulate or store data other than the data being accumulated from the ICSs.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A service information tracking system for use with a fitness facility having a plurality of fitness equipment units, the system comprising:

(a) a control server to gather service information from at least one of the fitness equipment units; the control server including a data storage system to store and make accessible the information; and

(b) a wireless communication connection between the control server and the fitness equipment units to accommodate the gathering of service information.

2. The system according to claim 1, wherein the control server prepares and sends a service alert message to at least one recipient.

3. The system according to claim 2, wherein the message is generated if a fitness equipment unit experiences a significant event.

4. The system according to claim 1, wherein the control server prepares and makes accessible a service report based on the information in its data storage system.

5. The system according to claim 4, wherein the control server prepares and sends a service report to at least one recipient based on the information in its data storage system.

6. The system according to claim 1, further comprising an accumulated data storage system including a permanent data storage unit; the accumulated data storage system gathering information from the control servers, and storing the information in the permanent data storage unit;

wherein the service information gathered at the accumulated data storage system is accessible by at least one user.

7. The system according to claim 6, further comprising an enterprise level platform for integrating and accessing the accumulated data storage system and the control servers, including providing user access to the server's information stored at the control servers and/or accumulated data storage system.

8. The system according to claim 6, wherein a user may access service information from the accumulated data storage system from a remote location.

9. The system according to claim 6, wherein a user may access service information from the control servers from a remote location.

10. The system according to claim 9, wherein the service information stored in the control server data storage unit is called real time data and the service information stored in the permanent data storage unit is called history service information, wherein a user may simultaneously access the real time service information and history service information from a remote location.

11. The system according to claim 6, wherein the control server sends service information to the accumulated data storage system according to a predefined time schedule.

12. The system according to claim 6, wherein the control server sends service information to the accumulated data storage system according to a predefined event schedule.

13. The system according to claim 6, wherein the a user may access the service information from the accumulated data storage system from a remote location by an Internet-based system.

14. The system according to claim 6, wherein a user may access service information from the accumulated data storage unit from a remote location by a wireless communications protocol.

15. The system according to claim 7, further comprising a plurality of data storage systems, each gathering information from a plurality of control servers and an enterprise level platform for coordinating the plurality of accumulated data storage systems and associated control servers, and providing user access to the information stored in the plurality of data storage systems and associated control servers.

16. An electronic method of obtaining a service alert pertaining to exercise equipment, the method comprising;

(a) using a control server at a fitness facility to gather service information from at least one fitness equipment unit via a wireless connection;

(b) determining whether the service information gathered in step (a) is significant; and

(c) automatically sending a service alert message to at least one predefined recipient regarding service information that is significant.

17. The method according to claim 16, wherein sending a service alert is accomplished automatically.

18. The method according to claim 16, wherein sending a service alert is accomplished only when requested by at least one recipient.

19. The method according to claim 16, wherein using the control server to gather service information includes storing the service information in a database associated with the control server.

20. The method according to claim 16, wherein the service information is considered significant if the fitness equipment unit requires servicing

21. The method according to claim 16, wherein the service information is sent by the control server.

22. The method according to claim 16, wherein the control server gathers real time service information; the method further comprising using an accumulated data storage unit to store history service information; the history service information being formed by the periodic collection of the real time service information.

23. The method according to claim 22, wherein determining whether the real time service information is significant includes obtaining and evaluating the history service information.

24. The method according to claim 22, wherein sending a service alert message includes sending from the control server the real time service information and sending from the accumulated storage unit the history service information.

25. The method according to claim 22, wherein sending a service alert message includes sending from the control server both the real time service information and the history service information.

26. The method according to claim 22, wherein sending a service alert message includes sending from the accumulated data storage unit both the real time service information and the history service information.

27. The method according to claim 16, wherein the control server gathers real time service information; the method further comprising using an accumulated data storage unit to store history service information; wherein sending a service alert message includes sending both real time service information and history service information.

28. The method according to claim 27, wherein the history service information is formed from the periodic collection of real time service information via a wireless connection.

29. The method according to claim 27, wherein both the real time service information and the history service information are sent by the control server.

30. The method according to claim 27, wherein both the real time service information and the history service information are sent by the accumulated data storage unit.

31. A method of obtaining service information from fitness equipment units, the method comprising;

(a) requesting service information on the fitness equipment units from an accumulated data storage unit having a permanent database; the request including instructions defining what types of service information are to be obtained; the database having been formed from an accumulation of service information from a plurality of temporary databases; and

(b) receiving a service report from the accumulated data storage unit according to the instructions; wherein the service report includes a plethora of information.

32. The method according to claim 31, wherein the service information from the accumulated data storage unit includes both current service information and history service information.

33. The method according to claim 31, wherein the service information from the accumulated data storage unit includes history service information; the method further comprising requesting current service information from a plurality of temporary databases.

34. The method according to claim 33, wherein requesting service information is accomplished via wireless protocol.

35. A method of obtaining service information, the method comprising requesting service information from a control server having a temporary database; the request including instructions defining what types of service information are to be obtained; and receiving a service report from the control server according to the instructions.

36. The method according to claim 35, wherein the service information is real time service information.

37. In a computer system having a graphical user interface including a display and a user interface selection device, a method comprising providing real time and history service information regarding fitness equipment units.

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